

**Missouri Department of
Health and Senior Services**

**LEAD POISONING
PREVENTION MANUAL**

Missouri Department of Health and Senior Services

LEAD MANUAL

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The Missouri Department of Health and Senior Services is responsible for protecting and promoting the health of Missourians by assessing health status and needs, developing policies and priorities, and assuring that the state is responding appropriately.

AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER
Services provided on a nondiscriminatory basis

This manual was assembled by the Section for Environmental Public Health staff involved in managing the statewide childhood lead poisoning prevention efforts.

Section for Environmental Public Health

Vision

Missouri public health agencies, through a universally recognized, comprehensive environmental health program, will eliminate negative human health effects to create a safe and healthy place to live.

Mission

We provide the citizens and guests of Missouri a safe and healthy environment through assessment, policy development, and intervention implementation to prevent unnecessary exposure to hazardous environmental conditions that cause illness, injury, and death.

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Purpose of the MDHSS Lead Manual

The purpose of the Missouri Department of Health and Senior Services (MDHSS) Lead Manual is to describe the steps necessary to identify, treat, and prevent lead poisoning in children. The Lead Manual attempts to outline the steps and procedures that should be followed when providing blood testing, medical management, environmental risk assessment and care coordination when a child is found to be poisoned.

In addition, an attempt is made to describe the responsibility of various service partners during the process of providing services and the steps to be undertaken. However, due to limited availability of resources, the coordination and provision of services varies greatly across the state. This manual does not attempt to address all of the variations.

Absolute prevention of further lead poisoning must involve rehabilitation of housing structural components and at times other environmental concerns. Frequently the environmental action plan recommended by the risk assessor for an elevated lead level child is limited in the recommendations that can be made due to financial constraints of the family or property owner. These are issues beyond the scope of this manual, but must be addressed by both the state and the local communities.

The manual includes information about a wide variety of topics. Some subjects are useful to many audiences such as:

- Recommendations for time-phased actions based on a child's blood lead test results
- How the public health system in Missouri works for children identified with elevated blood lead levels
- How the roles of each of the various fields of expertise work together to complement each other for the assurance that a child's health is improved and/or maintained.
- Where to call for additional technical assistance.

Health Care Providers

Health care providers referencing the Lead Manual will have access to:

- The recommendations and requirements for childhood blood lead testing
- Information about laboratories that analyze blood for lead content
- How to perform a Lead Risk Assessment for a child
- Hand-washing techniques to avoid contamination during blood draws
- How to interpret and respond to blood lead test results for children
- When to obtain current information on how to medically treat a child identified with lead poisoning
- How to obtain a home environmental lead Assessment for an EBL child
- The recommended follow-up guidelines for EBL children
- When to re-test EBL children
- Blood Lead Testing Reporting Requirements in Missouri
- How to find out the extent of childhood lead poisoning for areas of Missouri
- How to access anticipatory guidance materials for parents of young children

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Public and Private Laboratories

Laboratories referencing the Lead Manual will be able to know:

- Requirements for performing blood lead analyses in Missouri
- The requirements for complete and timely reporting of blood lead test results
- Requirements for analyses of environmental samples for lead content

Case Managers

Case managers, service coordinators and care coordination staff referencing the Lead Manual will be able to know:

- How to complete the Family History Questionnaire
- How to develop and carry out an appropriate care plan
- What information to provide a family caregiver to reduce a child's blood lead level
- Other available health, housing and social services to refer a family with an EBL child for necessary assistance
- How to assure a variety of diverse services are coordinated for provision to the family of an EBL child
- How to record and report case management activity for an EBL child
- When to close an EBL child case

Licensed Lead Risk Assessors Performing EBL Environmental Risk Assessments

Licensed lead risk assessors that reference the lead manual for performing EBL Assessments will be able to know:

- The laws, regulations and requirements for lead activities associated with an EBL case
- How to schedule and conduct an EBL environmental risk assessment
- How to collect environmental samples and interpret the analysis results
- What interim controls are and how to safely apply them
- What lead abatement is and how to safely carry it out
- Recommendations to make to property owners to safely reduce identified lead hazards
- How to prepare the EBL environmental risk assessment report
- How to follow an EBL environmental risk assessment through lead hazard reduction completion
- What to do about a non-compliant property owner
- How to record and report EBL environment risk assessment activity
- When to close an environmental risk assessment record

Local Public Health Agencies and Managed Care Organizations

Depending on individual staff responsibilities (i.e., nurse-case managers, environmental public health specialists), referring to the Lead Manual will provide pertinent information for the specialty areas listed above. In addition, Local Public Health Agencies (LPHAs) and Managed Care Organizations (MCOs) will gain a better understanding of their individual, yet connected roles, and the additional support systems that are available to them.

Both of these organizations are expected to closely collaborate and coordinate activities to avoid duplication of services, or conversely gaps in services. Thus, limited resources are used widely to assure the continued and/or improved health of children within each agency's purview for which both agencies hold some responsibility.

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Lead Poisoning

Lead in the Environment

Lead is a shiny silver colored heavy metal found naturally in the earth's crust. It is used in our society for a variety of reasons:

- Lining tanks, piping and other equipment where pliability and corrosion resistance are required.
- Handling corrosive gases and liquids (e.g., sulfuric acid, etc.) for:
 - Transportation-automotive batteries
 - Petroleum refining
 - Halogenation
 - Vitreous enameling
- X-Ray and atomic radiation protection
- Pigment for paints, varnishes, glazes, enamels
- Ammunition
- Compounding agent in rubber manufacture
- Additive to bronze, brass, steel, and other alloys to improve their characteristics
- Compound in:
 - Ceramics
 - Cable covering
 - Plastics
 - Casting metals
 - Electronic devices
 - Other metal products
 - Flint glass
 - Crystal

Lead is not typically considered harmful in its natural state. It is only processed or recycled lead that can become a health hazard. Fine particles of processed or recycled lead and/or lead dust becomes a health hazard when it is taken into the body through inhalation (breathing) and/or ingestion (swallowing).

Effects of Lead Poisoning

Lead affects almost every organ and system in the body. The effects are the same whether it is breathed or swallowed. Lead damages the brain, central nervous system, kidneys, and immune system.

Children

Lead in the human body is most harmful to young children under six years of age. It is especially detrimental to children less than three years of age due to their rapidly developing systems. Young children are more likely to take lead into their bodies due to their frequent hand-to-mouth behavior. Their closer proximity to lead dust on the floor and in the soil also increases their risk of exposure. Children absorb and retain more lead in proportion to their weight than do adults. The hearing and growth of young children is also adversely affected by lead. Lead can cause learning and behavioral problems in children. Low-level exposure to lead during early development has been linked to deficits in neurobehavioral-cognitive performance later in childhood and adolescence.

Adults

In adults, lead may decrease reaction time, cause weakness in fingers, wrists, or ankles, bring about constipation, influence hypertension, and possibly affect the memory and concentration. Higher levels of exposure may cause abdominal pain, anemia, encephalopathy and infertility.

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Unborn children can be exposed to lead through their mothers. Harmful effects include premature births, smaller babies, decreased mental ability in the infant, learning difficulties, and reduced growth.

Symptoms of Lead Poisoning

Symptoms of lead poisoning may range from subtle or unnoticeable, to death. Many of the indicators of lead poisoning are common symptoms of numerous other illnesses, and therefore, lead poisoning may not initially be suspected.

Mild Toxicity

Mild fatigue
Irritability
Occasional abdominal pain
Muscle pain
Lethargy - listlessness
Hyperactivity

Moderate Toxicity

General fatigue
Headache
Abdominal pain
Joint pain
Difficulty concentrating
Behavior problems
Constipation
Vomiting
Weight loss

Severe Toxicity

Paralysis
Encephalopathy
Seizure
Coma
Death

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Exposure Sources

Lead Paint

Lead dust is the primary source of lead poisoning today. Lead from paint, soil, occupational and industrial sources, as well as certain hobbies, contaminates the dust.

Paint

Through the 1940s, paint with up to 50% lead additives was in widespread use. Beginning in the 1950s, the use and manufacture of interior lead-based paint declined. Until the mid-1970s, exterior lead-based paint and lesser amounts of interior lead-based paint continued to be available.

In 1978, the Consumer Product Safety Commission banned the manufacture of paint containing more than 0.06% lead by weight for use on interior and exterior residential surfaces, toys, and furniture. Unfortunately, lead-based paint that is still available for industrial, military, and marine usage occasionally ends up being used in homes.

Based on this historic review, housing built prior to 1978 may contain some lead-based paint. Pre-1950 housing poses the greatest potential risk for exposure due to the high lead content in paint used for residential housing at that time. Additionally, due to its age, housing built prior to 1950 may more likely be deteriorated. Thus, the interior and exterior paint of these residences may be chipping, peeling, flaking, and/or dusting.

Intact paint containing lead is not necessarily a hazardous threat to human health. It is only when the paint begins to chip, peel or flake that particles and/or dust become available for uptake into the body. Friction surfaces (i.e., windows, doors, floors, and stairs) coated with lead-based paint also present a health hazard because of the dust that is created when the surfaces rub together.

Additionally, chewable surfaces (e.g., windowsills, chair rails, toys, furniture, etc.) coated with lead-based paint can present an extreme health hazard for young children. Due to children's natural curiosity to explore their environment with all of their physical senses, and the fact that lead-based paint has a sweet taste, their attraction to such a health hazard is understandably increased.

Finally, hazardous lead dust is created, many times in large quantities, during remodeling and renovation of older housing and/or lead-based painted, varnished, or enameled furniture and refinished bathtubs. Many parents, in their attempt to provide a safe, clean, and healthy home environment for their children unknowingly release lead toxins in this manner and endanger their children, themselves and visitors to their home.

Soil

Lead-contaminated soil is primarily caused by past automobile emissions, industrial emissions, and exterior remodeling. In some parts of Missouri, past lead mining industries have also contributed to the lead contamination of nearby residential soil.

Automobile emissions have been an important source of soil contamination, particularly in areas that had congested traffic during the period when gasoline contained lead additives. The lead from the dust in automobile emissions was deposited in the soil along roadways. Because lead is a heavy metal it does not wash away easily, thus children playing in these areas may come in contact with lead contaminated soil.

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Industrial emissions may also be a source of exposure for lead poisoning. Missouri is the number one producer of lead ore and lead by-products in the United States. Communities near active mining, milling and recycling plants may be affected by emissions into the air from these industries. Routine air sampling is conducted in these areas to monitor and regulate their safety. Residual waste (chat) left behind from defunct mining operations in certain parts of Missouri may also present a source of exposure to surrounding communities.

Exterior remodeling, involving dry scraping and sanding of lead-based paint is a contributor to lead-contaminated soil. Careful removal, containment and clean-up procedures should be followed to avoid contamination of the nearby soil, as well as yards within the neighborhood caused by blowing wind.

Occupational

Occupations that deal with lead may also pose a health hazard for individuals and families through take-home lead dust that contaminates clothing, vehicles, lunch boxes, laundry, etc. Some of these occupations include:

- Lead smelting
- Lead recycling
- Battery manufacturing/recycling
- Bridge reconstruction workers
- Brass/copper foundry
- Rubber products manufacturing
- Printers
- Auto repair
- Plumbers/pipe fitters
- Construction workers
- Glass manufacturing
- Plastics manufacturing
- Steel welders and cutters
- Shipbuilders

Other Sources

Several folk remedies used in this country have been shown to contain large amounts of lead. Two Mexican folk remedies are *azarcon* and *greta*, which are used to treat "empacho", a colic-like illness. *Azarcon* and *greta* are also known as *liga*, *Maria Louisa*, *alarcon*, *coral*, and *rueda*. Lead-containing remedies and cosmetics used by some Asian communities are *chuihong tokuwan*, *pay-loo-ah*, *ghasard*, *bali goli*, and *kandu*. Middle Eastern remedies and cosmetics include *alkohl*, *kohl*, *surma*, *saoott*, and *cebagin*.

Other potential exposure sources for lead poisoning include, but are not limited to:

- Glazed pottery
- Stained glass
- Lead figurines
- Lead shot/bullets
- Furniture refinishing
- Imported crayons
- Fishing sinkers
- Lead soldering
- Lead crystal
- Target shooting at firing ranges
- Mini-blinds
- Leaded candle wicks

Both of these organizations are expected to closely collaborate and coordinate together to avoid duplication of services, or conversely, gaps in services. Thus, limited resources are used wisely to assure the continued and/or improved health of children within each agency's purview for which both agencies hold some responsibility.

REFERENCES:

Case Studies in Environmental Medicine: Lead Toxicity. Agency for Toxic Substances and Disease Registry. (Revised September 1992)

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Analyses Requirements

Blood Lead Analyses

All laboratories performing blood lead analyses must be CLIA certified as required by law¹. For information about the Clinical Laboratory Improvement Act CLIA, contact the Missouri Department of Health and Senior Services and Senior Services, Bureau of Health Facilities Regulations, (573) 751-6318.

Organizations using hand-held portable blood lead analysis machines must be CLIA certified. State laws require that results obtained from hand-held portable blood lead analysis machines must also be reported as required².

Lead-Bearing Substances Analyses

All laboratories analyzing environmental samples (i.e., paint, soil, dust, etc.) for lead content must be recognized by the EPA's National Lead Laboratory Accreditation Program (NLLAP) as required by law³. All laboratories recognized by the NLLAP are required to undergo on-site audits, and to perform successfully on a continuing basis in the national Environmental Lead Proficiency Testing (ELPAT) Program.

Currently, EPA recognizes the American Industrial Hygiene Association (AIHA) and the American Association for Laboratory Accreditation (A2LA) as accreditation organizations participating in the NLLAP laboratories audit process. For further information about NLLAP-recognized laboratories, call the National Lead Information Center at 1-800-424-LEAD.

Internet site for Missouri Statutes: <http://www.moga.state.mo.us/homestat.htm>

Internet site for Missouri Rules: <http://mosl.sos.state.mo.us/csr/csr.htm>

¹ RsMo 701.318

² MO 19 CSR 20-20.010-080

³ 40 CFR 734.227(f)(2) and MO 19 CSR 30-70.610(5)(B) and 30-70.620 (4)(B)

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Blood Lead Analyses Reporting Requirements

Blood Lead

All laboratories are required by law to report all blood lead test results⁴ for Missouri citizens to the Missouri Department of Health and Senior Services (MDHSS) or the local health authority as follows⁵:

PATIENT'S AGE	BLOOD LEAD TEST RESULTS µg/dl = micrograms per deciliter	TIMEFRAME
72 months or less (<6 years of age)	>45 µg/dl	Within 24 hours
-----	<45 µg/dl	Within 3 days
-----	-----	-----
73 months or greater (≥6 years of age)	All results	Within 3 days

All reported blood lead test results are required by law² to include the following information:

Patient Information:

- Complete name
- Date of Birth
- Sex
- Race
- Home address with zip code
- Home phone number

Test Information:

- Test type (venous or capillary)
- Test result
- Date of blood draw
- Date of analysis
- Treatment facility (if any)
- Attending physician
- Name and address of reporter
- Date of report

Reporting may be accomplished in a variety of ways. By submitting:

- Copies of individual laboratory slips
- Computer generated paper reports
- Electronic file on floppy disk, or via internet e-mail (using encryption or passwords)

Electronic Reporting

To make arrangements to report electronically, or for further reporting information, contact the Missouri Department of Health and Senior Services at 1-573-526-4911.

All local health authorities are required by law² to forward to the Missouri Department of Health and Senior Services all reported test results within twenty-four (24) hours after being received, according to procedures established by the MDHSS.

⁴ RsMo 701.318

⁵ MO 19 CSR 20-20.010-080

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Public Health Laboratories

There are five public health agencies in Missouri with CLIA certified laboratories that perform blood lead analyses:

- Missouri Department of Health and Senior Services and Senior Services– Jefferson City
- Kansas City Health Department – Kansas City
- St Louis City Department of Health and Hospitals – St Louis
- St Louis County Department of Health and Senior Services – Clayton
- Springfield-Greene County Public Health Center – Springfield

Some of the public health laboratories provide blood lead analyses for private health care providers, while others do not. A short synopsis for each of the public health laboratories is provided on the following pages. Private health care providers seeking to utilize public health laboratory services are encouraged to contact the public health laboratory closest to their clinic to obtain further information.

Analyses of environmental samples (i.e., water, paint, soil, dust, etc.) for lead content, is also performed by some of the public health laboratories. However this service is generally only provided for EBL (elevated blood lead) child investigations and licensed daycare center licensing inspectors. Consult the following descriptions or contact the nearest public lab for further information about this service.

**Missouri Department of Health and Senior Services Laboratory
(573/751-4454 OR 573/751-3334)**

Blood Lead Analyses

The State Public Health Laboratory (SPHL) offers blood lead analyses of both capillary and venous drawn specimens from children six months through six years of age for all local public health agencies and private health care providers. All private health care providers are encouraged to use the lead testing services of private laboratories, or contact the public health laboratory closest to their clinic, before contacting the SPHL.

Blood lead analyses for patients/clients other than children six months through six years of age may be performed by the SPHL under certain circumstances (i.e., special studies, at-risk pregnant women, etc.) for local public health agencies only. However, prior approval and notification from the Missouri Department of Health and Senior Services, Section for Environmental Public Health (1-573-526-4911) must be obtained. The SPHL does not analyze blood lead specimens for occupational purposes unless it is a part of an approved special study.

All specimens are analyzed by atomic absorption spectroscopy (AAS). The SPHL participates in the national CLIA approved proficiency-testing program. Thus, all submitters must meet and follow certain criteria and procedures as established by the SPHL. Private health care providers must register as a SPHL provider before specimens will be accepted.

Blood Lead Supplies

All blood specimens must be submitted in collection devices provided free of charge by the SPHL. Mailing supplies for specimens are also provided at no charge. These measures provide several quality assurances, including guarantees that collection tubes do not contain detectable lead by contacting the phone numbers listed above.

All blood collection kits provided by the SPHL come with:

- Plastic centrifuge tubes – to protect specimens during shipment
- Cardboard boxes for shipment – two sizes are supplied
 - Corrugated tubes – for mailing one centrifuge tube
 - Cardboard boxes – for mailing three centrifuge tubes
- Pre-addressed colored mailing labels
- Blood lead analysis request forms (examples on following page)

Capillary kits also contain:

- Capillary collection devices*
- Labels for specimens

Venous kits also contain:

- Vacutainer collection tubes
(tan top, lead-free, with label)

To obtain blood collection supplies from the SPHL:

- Call the Central Services Unit at 573/751-4830 or 573/751-1389 or 573/751-3334.
- Fax or mail the Requisition for Laboratory Specimen Kits Lab-19 form.
Supplies may be ordered as a complete kit or as individual components.

*SPHL collection devices are tested and known to be lead free.

Blood Collection

1. Complete the sample label and the appropriate analysis request form. The following information is required for *each* specimen submitted to the SPHL:

The patient's name on the specimen *and* on the analysis request form must match.

- Date specimen collected
- Patient's name, date of birth, address, and parent/guardians name
- Complete name and mailing address of the requesting facility
- Name and telephone number of person authorized to receive test results by phone

2. Collect the following quantities of blood (refer to the Lead Testing section for recommended techniques):

- Capillary – 250 to 500 microliters
- Venous – approx. 1 milliliter (2/3 of a vial)

3. Immediately close the tube and rock it gently back and forth for 30 seconds to thoroughly mix the blood with the anti-coagulant.

4. Pack the specimen in a centrifuge tube to protect it during shipment. Each centrifuge tube can hold up to:

- 3 capillary collection devices; or
- 1 venous Vacutainer collection tube.

5. Use the correct sized mailing box and a pre-addressed colored mailing label to ship the blood specimen(s) to the SPHL. NOTE: If it is not possible to mail specimens the same day they are drawn, refrigerate them until they can be mailed.

Blood Lead Analyses Restrictions

Specimens are not analyzed by the SPHL if any of the following conditions exist:

- The specimen is not submitted in the proper collection device
- There is no identifying information on the specimen
- The specimen identification does not match the identification on the request form
- The specimen is clotted
- There is an insufficient quantity of blood

Reporting Results of Blood Lead Analyses

All blood lead test results are reported as lead micrograms per deciliter of blood ($\mu\text{g}/\text{dl}$). Results of 20 $\mu\text{g}/\text{dl}$ or greater are immediately phoned to the person authorized to receive the results as specified on the analysis request form.

Venous blood lead test results are reported with the actual quantity of lead (e.g., 18 $\mu\text{g}/\text{dl}$) for results 5 or greater. For analysis results <5 $\mu\text{g}/\text{dl}$, the report is returned as " <5 $\mu\text{g}/\text{dl}$ ".

Capillary blood lead test results are reported in the following ranges because the SPHL deems that the quality assurance from sample collection through analysis does not support reporting analysis results as a definitive number:

< 10 $\mu\text{g}/\text{dl}$	15-19 $\mu\text{g}/\text{dl}$	31-44 $\mu\text{g}/\text{dl}$	> 69 $\mu\text{g}/\text{dl}$
10-14 $\mu\text{g}/\text{dl}$	20-30 $\mu\text{g}/\text{dl}$	45-69 $\mu\text{g}/\text{dl}$	

**Missouri Department of Health and Senior Services
(573/751-4454 OR 573/751-3334)**

Environmental Lead Analyses

All specimens are analyzed by atomic absorption spectroscopy (AAS). The State Public Health Laboratory (SPHL) is an NLLAP-recognized laboratory for analyzing lead in paint, dust or soil samples. Thus, all submitters must meet and follow certain criteria and procedures as established by the SPHL.

Water samples must be submitted by an environmental public health specialist or environmental specialist employed by a public health agency.

Paint, dust, or soil samples must be submitted by a Licensed Lead Risk Assessor only in conjunction with an environmental lead investigation being conducted for a child with an elevated blood level of:

- 20 µg/dl or greater, or
- 2 consecutive blood lead levels of 15 µg/dl or greater that are taken at least 3 months, but not more than 6 months, apart.

Environmental Lead Supplies

All environmental samples must be submitted in collection devices* provided free of charge by the SPHL. These measures provide several quality assurances, including guarantees that collection devices do not contain detectable lead.

All environmental collection kits provided by the SPHL come with:

- Labels for specimens
- Pre-addressed colored mailing labels
- Lead analysis request forms (examples on following pages)
- Dust, soil & paint chips - Environmental Lead Analysis forms
- Water – Private Water Supply forms

Dust Wipe kits also contain:

- Individually wrapped wipes
- 50 ml conical tubes

Soil kits also contain 8” x 10” plastic zip lock bags

Water kits also contain 1-quart cubitainers

Paint chip kits also contain 4” x 6” plastic zip lock bags

To obtain environmental lead sampling collection supplies from the SPHL:

- Call the Central Services Unit at 573/751-4830 or 573/751-1389 or 573/751-3334.
- Fax or mail the Requisition for Laboratory Specimen Kits Lab-19 form.

Supplies may be ordered as a complete kit or as individual components.

*SPHL collection devices are tested and known to be lead free

Environmental Lead Sample Collection

1. Complete an environmental sample label and an appropriate analysis request form *for each specimen*.

The following information is required for *each* specimen submitted:

- The identification information on the label affixed to the environmental sample *and* on the analysis request form *must* match
 - Date specimen collected
 - Patients name, date of birth, address, and parent/guardians name
 - Complete name and mailing address of the requesting facility
2. Collect the following quantities of samples (refer to the Environmental Management section for recommended sampling techniques):
- Dust wipes–Submit 1 field blank wipe (in which no surface is wiped) for each address investigated where dust wipe samples are taken
 - Soil–At least 400 grams (approximately 1 pint)
 - Water–At least 500 milliliters (approximately one-half of a quart)
 - Paint chips–The equivalent of at least 3 square inches

3. Package and ship specimens using the pre-addressed mailing labels as soon as possible after collection.

Reporting of Environmental Lead Analyses Results

The SPHL is not a stat laboratory; therefore, the submitter will receive results within the following timelines:

- Water – within 1 to 1½ weeks
- Paint, dust, or soil – within 1 to 3 weeks

Results are reported with the following units (see Environmental Management Section for equivalents and calculations):

- Paint: percent lead by weight (%)
- Dust: micrograms of lead per wipe (µg Lead/Wipe)
- Soil: micrograms of lead per gram of dry soil (µg Lead/ g dry soil)
- Water: parts per billion or micrograms per liter (ppb or µg /L)
- Air Filters: mg lead per filter.

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Subsection: 2.3 Public Health Laboratories	

Kansas City Health Department Laboratory (816/513-6048)

Blood Lead Analyses

The Kansas City Public Health Laboratory (KCPHL) conducts blood lead analyses of both capillary and venous drawn specimens from clients seen by clinics directly affiliated with the Kansas City Health Department.

All specimens are analyzed by atomic absorption spectroscopy (AAS). The KCPHL participates in the national CLIA approved proficiency-testing program.

Environmental Lead Analyses

Lead analyses of environmental samples (i.e., water, paint, soil, dust, etc.) are also provided by the KCPHL for its lead-licensed employees conducting:

- EBL child investigations
- Licensed daycare inspections
- Quality assurances for the local HUD Lead-Safe 2000 Project

St Louis City Department of Health and Hospitals (314/658-1140)

Blood Lead Analyses

The St Louis City Public Health Laboratory (SLPHL) conducts blood lead analyses of both capillary and venous drawn specimens for surrounding local public health agencies and private health care providers.*

All specimens are analyzed by atomic absorption spectroscopy (AAS). The SLPHL participates in the national CLIA approved proficiency-testing program.

Environmental Lead Analyses

Lead analyses of environmental samples (i.e., water, paint, soil, dust, etc.) are also provided by the SLPHL for its lead-licensed employees conducting:

- EBL child investigations
- Licensed daycare inspections
- Housing inspections in local conservation districts
- Quality assurances for the local HUD Lead Grant
- Owner
- Requested limited lead risk assessments

*Private health care providers should call the laboratory for information regarding the collection equipment to utilize.

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Subsection: 2.3 Public Health Laboratories	

St. Louis County Department of Health Laboratory(314/615-0600)

Blood Lead Analyses

The St Louis County Public Health Laboratory (SLCoPHL) conducts blood lead analyses of both capillary and venous drawn specimens from clients seen by clinics directly affiliated with the St Louis County Department of Health and Senior Services.

Capillary specimens are analyzed using a LeadCare Analyzer or AA (Atomic Absorption) Analyzer. AA confirms elevated capillary levels. All venous specimens are analyzed by AA.

Environmental Lead Analyses

Lead analyses of environmental samples (i.e., water, paint, soil, dust, etc.) are also provided by the SLCoPHL for its lead-licensed employees conducting:

- EBL child investigations
- Licensed daycare inspections
- Quality assurances for the local HUD Grant
- Owner requested limited lead risk assessments

Springfield-Greene County Public Health Center Laboratory(417/864-1670)

Blood Lead Analyses

The Springfield-Greene County Public Health Laboratory (SGCPHL) conducts blood lead analyses of both capillary and venous drawn specimens for surrounding local public health agencies and private health care providers.*

Capillary specimens are analyzed using a LeadCare Analyzer or AA (Atomic Absorption) Analyzer. AA confirms elevated capillary levels. All venous specimens are analyzed by AA.

The SGCPHL participates in the national CLIA approved proficiency testing program.

Environmental Lead Analyses

All lead analyses of environmental samples (paint, soil, dust) are sent to a private lab. The SGCPHL does perform lead analysis of water samples for county residents who do not receive water from the Springfield public water system. Within the Springfield city limits, Springfield City Utilities perform all water analyses.

*contact the laboratory for information regarding sample collection equipment

Section 3.0 Public Health System	Page 1 of 1
Subsection 3.1 Core Public Health Functions	Revised

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3.1	Core Public Health Functions
3.2	Lead Surveillance
3.3	Local Public Health Agencies
3.4	Missouri Department of Health and Senior Services
3.5	Medicaid
3.6	Collaboration and Coordination

Section 3.0 Public Health System	Page 1 of 1
Subsection 3.1 Core Public Health Functions	Revised

Core Public Health Functions

The core functions of public health, whether at the local, state or federal level, are assessment, policy development and planning, and assurance. These functions relate to population-based activities versus individual health care.

Assessment

Assessment involves collecting information to evaluate what has happened, is happening, or will happen. For public health, routine assessment functions are performed to:

- Detect causes of outbreaks or sources of exposure;
- Recognize and predict affected populations and trends;
- Identify what is working and/or what may be lacking within any system that may impact human health; and
- Report findings.

For childhood lead poisoning prevention, assessment relates to the surveillance activities described in the following section.

Policy Development and Planning

Policy development and planning are derived from the evidence that results from the assessment process. The policies reflected throughout this manual (including referenced federal, state and local laws) are a result of several years of on-going assessment activities (i.e., studies) related to childhood lead poisoning prevention, detection and interventions.

Assurance

Assurance is the process that promotes healthy behaviors and monitors systems that may impact human health to ensure continued health protection and/or improvement, based on current policies. The policies in this manual provide guidance and instruction for appropriate service delivery for childhood lead poisoning and its prevention

Section 3.0 Public Health System	Page 1 of 2
Subsection 3.2 Lead Surveillance	Revised

Lead Surveillance

The Missouri Department of Health and Senior Services (MDHSS) is required by law to maintain a lead poisoning information reporting system.* Two systems are currently in operation:

1. A passive surveillance system that records all reported blood lead test results for all Missouri citizens older than six years of age.
2. The Childhood Lead Surveillance System, (CLSS) which actively records and reports all lead testing and follow-up activities for children less than 73 months of age.

Childhood Lead Surveillance System

Data Collection

The CLSS actively records and reports:

- All blood lead test results for children less than 73 months of age
- Address information for all lead-tested children less than 73 months of age
- Case management activities for children identified with elevated blood lead (EBL) levels
- Environmental investigation information at addresses where children with elevated blood lead levels currently reside, frequently visit, or have resided or frequented
- Lead hazard reduction information at environmentally investigated addresses

Blood Lead Test Reports

Although the MDHSS has ultimate responsibility, the statewide CLSS is actively maintained with considerable support from several local public health agencies (LPHAs). The following local CLSS sites, operate local public health laboratories, and also electronically record, track, follow-up, analyze, and report all lead information for children residing within their areas of responsibility:

- Kansas City Health Department
- St Louis City Department of Health and Hospitals
- St Louis County Department of Health
- Springfield-Greene County Public Health Center

MDHSS electronically records all lead information for children residing in the remaining “Other Areas” of Missouri. Information from all CLSS sites is periodically merged into a master file at the MDHSS for statewide analyses and reporting.

Referrals

When a report is received by the MDHSS of a child with an EBL that requires case management and environmental investigation, the information is immediately faxed to the appropriate jurisdictional LPHA within the “Other Areas” of Missouri. Each LPHA is responsible for assuring that appropriate and timely services are rendered for its constituents. Pertinent follow-up information is gathered and reported to MDHSS for recording in the CLSS.

Tracking

The CLSS is used to track elevated blood lead (EBL) child cases and an EBL investigation to assure that appropriate follow-up is occurring in a timely manner. Reminder phone calls, letters, and faxes are periodically sent to LPHAs for EBL cases and investigations in which follow-up information has not been received.

*RsMo 701.326

Section 3.0 Public Health System	Page 2 of 2
Subsection 3.2 Lead Surveillance	Revised

Analyses

Routine analyses are performed using the data collected in the CLSS:

- Various trends of EBL are evaluated.
- Environmental, case management and medical activities are monitored.
- Types of identified lead hazards are assessed.
- Lead hazard reduction methods that are employed are reviewed.

Reporting

- **Weekly** reports are mailed to all Medicaid Managed Care health plans and Division of Medical Services listing children enrolled within each plan that were reported with elevated blood lead levels of 10 µg/dl or greater during that week. These reports are intended to inform the plans about their EBL children and elicit a response as to the follow-up conducted.
- **Monthly** reports are mailed to all LPHAs listing all children residing within their jurisdiction that were blood lead tested during the previous month. These reports notify each LPHA regarding blood lead testing activities occurring for children residing within their jurisdiction, and inform the LPHAs of providers conducting lead testing for children within their area.
- **Monthly PbB Overdue Blood Lead** testing reports are mailed to all LPHAs listing all children residing in their jurisdiction who need follow-up blood lead testing.
- **Monthly Open Investigation reports** are mailed to all counties and District Supervisors.
- **Annual** reports are produced and disseminated twice each year (at the end of the calendar year and the fiscal year) that give an aggregate summary of:
 - Number of childhood blood testing by county
 - Percent of the child population tested by county
 - Number of EBL children by county
 - Percent of EBL children of those lead-tested by county (prevalence)
 - Comparisons to the previous year.

Copies of annual reports are available from the Missouri Department of Health and Senior Services and Senior Services upon request. Historical annual reports from 1995 to present are also available.

- **Risk Factor** reports for lead poisoning by county (pre-1950 and pre-1980 housing, and poverty) are also available from the MDHSS upon request.

Section 3.0 Public Health System	Page 1 of 1
Subsection 3.3 Local Public Health Agencies	Revised

Local Public Health Agencies (LPHAs)

There are over 100 LPHAs located throughout Missouri that perform numerous health functions for the communities within their jurisdictions. The majority of LPHAs reside over a county, but there are a few city health departments as well. Each agency is autonomous, supported by local county or city taxes, state contracts, and federal grants. LPHAs, because of their locations directly within communities, and their well-established relationships with their constituents and local decision-makers, are in a position to effectively promote healthy behaviors and monitor systems that impact human health.

To prevent childhood lead poisoning, the LPHA role is to promote and ensure that Missouri children receive appropriate, adequate, and timely primary and preventative health care and have a safe, healthy home environment. Specifically, LPHAs should promote the listed action or inform with the following categories of people:

Physicians and Parents:

- Routine Childhood Blood Lead Testing

Homeowners, Landlords, Realtors, Public Housing Authorities, and Other Housing and Construction Related Professions:

- Safe remodeling, renovation and lead hazard reduction practices and proper notification
- Federal lead disclosure and notification laws

For children with lead poisoning, the LPHA roles are to:

- Assure appropriate medical and case management is provided through follow-up with responsible providers.
- Provide home environmental lead investigations to identify lead hazards that cause exposure.
- Assure identified lead hazards are reduced safely.
- Document and report case findings.
- Education of parents or guardians

For the phone number of the LPHA for your area, please consult your phone book, or contact the Missouri Department of Health and Senior Services at 1-573-526-4911 for your LPHA's phone number.

Section 3.0 Public Health System Subsection: 3.4 Missouri Department of Health and Senior Services	Page 1 of 1
	Revised

Missouri Department of Health and Senior Services (1-(573) 526-4911)

The Missouri Department of Health and Senior Services (MDHSS) is responsible statewide for:

- Surveillance, assessment and reporting activities (described previously)
- Policy development and implementation and enforcement (i.e., state statutes and regulations)
- Oversight and technical assistance to various public and private provider types
- Promotion of childhood lead testing and the prevention of childhood lead poisoning

Lead Licensing and Accreditation*

State laws require specific training and subsequent licensure of several lead occupations:

- Lead inspectors
- Lead abatement contractors
- Lead abatement workers
- Lead risk assessors
- Lead abatement supervisors
- Lead project designers

The MDHSS is authorized by state law* to accredit providers to conduct specific training for these lead occupations. The MDHSS then issues licenses to qualified, trained individuals for these lead occupations. Finally, the MDHSS is responsible for oversight of lead activities performed by these lead occupations and subsequent enforcement actions for violations.

The MDHSS is also responsible for the education and monitoring of lead abatement activities performed by the general public as established by state law.* Such proscribed lead abatement activities are described in more detail in the Environmental Management section.

*RSMo 701.300 - 338

EBL Environmental Risk Assessments

Although LPHAs are encouraged to respond to public health needs within the communities they serve, in local areas where the MDHSS contract is not accepted and environmental lead services are not provided, MDHSS staff located in the district offices respond to conduct environmental investigations for children with specific elevated blood lead levels. The operation of XRF equipment is also available to all LPHAs from MDHSS when necessary. MDHSS staff is available to provide all types of technical assistance to contracted LPHAs.

Educational Materials

Various educational materials about childhood lead testing, lead poisoning prevention and safe lead hazard reduction are available at no charge from the MDHSS. Refer to the appendices for a list of materials available and instructions for how to order them.

Other Functions

Other functions of the MDHSS are described throughout this section. For further assistance, please call the MDHSS at 1-573-526-4911

Section 3.0 Public Health System	Page 1 of 1
Subsection: 3.5 Medicaid	Revised

Medicaid

The Missouri Medicaid Program is administered by the Department of Social Services, Division of Medical Services. Childhood lead poisoning prevention activities are managed in two ways:

- Fee for Service System
- Managed Care Contracts

Fee For Service System

In the Medicaid Fee For Service System (FFS), Medicaid reimburses for the provision of specific services at a fixed rate. Childhood blood lead testing is included as one component of the routine Healthy Children and Youth (HCY—also known as EPSDT which stands for “Early Periodic Screening Diagnostic Treatment) screening. The HCY screen, conducted at regular intervals during early childhood, is reimbursed each time for a set dollar amount through billings from individual health care providers.

Lead case management is also reimbursed at a set dollar amount for each face-to-face visit with the caregiver of a child with a specific elevated blood lead level. Likewise, EBL environmental investigations and subsequent follow-up visits to the home are also reimbursed at set rates through provider billings. MDHSS works closely with Medicaid to document, justify and support increases for reasonable and appropriate reimbursement rates.

Managed Care Contracts

In certain areas of the state, Medicaid enters into contracts with Health Maintenance Organizations (HMOs) to provide certain Medicaid health care services, as set out by contract, at a single capitated rate for each Medicaid recipient enrolled with a contracted HMO. This arrangement is referred to as Medicaid Managed Care, or MC+ health plan and the HMOs contracted with Medicaid are referred to as Managed Care Plans or MC+ plans.

The MC+ health plans, in turn, contract with individual health care providers, or provider groups, to provide the necessary health care services. The MC+ health plan pays the individual providers with the money they receive through their contract with Medicaid. The contracts between the MC+ health plans and the health care providers can be arranged as fee-for-service or capitation at the discretion of these two contracting parties.

Within the MC+ health plans, childhood lead testing is again, required to be provided as part of the HCY screen, which is required as part of Medicaid’s contracts with the MC+ health plans. The provision of lead case management is also required as part of the MC+ health plans contract.

However, EBL environmental investigations are not part of the MC+ health plan contracts. EBL environmental investigations are reimbursed at the fee for service rate directly by Medicaid to individual licensed lead risk assessors, who must be enrolled as a Medicaid provider.

Medicaid requirements for all childhood lead poisoning services are the same as the recommendations made by the MDHSS as set forth in this manual. Medicaid and MDHSS work closely together to assure continuity of care, regardless of payer source.

Section 3.0 Public Health System	Page 1 of 2
Subsection 3.6 Collaboration and Coordination	Revised

Collaboration and Coordination

Elevated Blood Lead Level Report

The Missouri Department of Health and Senior Services (MDHSS), working with many different partners assures appropriate and timely services are rendered to any child with an EBL.

Identification of Complete Address and Medicaid Status

The child's complete address is obtained (if not included with the report), first by trying to locate a record for the child in the Department of Social Services database. At that time, if the child's record is located, the child's Medicaid status and, if applicable, the name of the MC+ health plan that he/she is enrolled in is also acquired. If a record for the child cannot be located in this manner, the office of the health care provider is contacted by phone to obtain the pertinent information. Should the name of the health care provider not be provided with the test result report, the reporting laboratory is contacted to obtain the needed information.

LPHA and MDHSS District Staff Notification

Once the complete address, Medicaid status and MC+ health plan is obtained, a fax is immediately sent to the LPHA of the county in which the EBL child resides. The fax notifies the LPHA of all the detailed information pertaining to the child, the test result, the health care provider, Medicaid status, MC+ health plan and the reporting entity. The fax also informs the agency of what follow-up action is needed (i.e., case management, environmental investigation). The appropriate MDHSS district staff is also faxed the same information.

MC+Health Plan Notification

On a weekly basis, a report is sent to all MC+ health plans providing each plan with the details regarding children enrolled in their plan that was reported with an EBL during that week. This report is also sent to the Department of Medical Services, Medicaid office to forward to each applicable plan. To assure duplication of services does not occur, all parties need to be kept abreast of all activities. (Coordination of care for an EBL child, EBL follow-up, collaborations with Medicaid, other collaborations)

Coordination of Care for an EBL Child

Once all parties are made aware of an EBL child, it is critical that the case manager to take the leadership in assuring that all parties remain informed of the status and progress of the case. It is the responsibility of all disciplines providing services to the EBL child/family to make efforts to assure that appropriate services are rendered in a timely manner.

- Case manager/service coordinator
- Environmental investigator
- Primary care provider
- MC+ health plan

All of these parties need to understand which party will be providing what service, and be kept collectively informed of the status of each of the following services:

- Referrals made for other services (i.e., WIC, food stamps, housing, etc.)
- Medical treatment
- Environmental investigation
- Other family issues
- Family cooperation
- Lead hazard reduction
- Status reporting
- Follow-up retesting
- Education provided
- Case closure

Section 3.0 Public Health System	Page 2 of 2
Subsection 3.6 Collaboration and Coordination	Revised

EBL Follow up Reporting

The MDHSS receives reports regarding follow-up care from LPHAs, MC+ health plans, district staff and Medicaid. If follow-up information is not received the MDHSS contacts these partners via phone, fax and mail to assure follow-up services are provided. All information is recorded in the Childhood Lead Surveillance System (CLSS). Cases within the CLSS are routinely reviewed and closed based on established closure criteria (refer to case and environmental management sections of manual).

Collaborations with Medicaid

- MDHSS and Medicaid staff meet at least on a quarterly basis
- The MDHSS works closely with Medicaid to assure all policy and procedural statements issued by both agencies are consistent.
- Lead testing data is matched with Medicaid eligible client data to determine the extent of lead testing within the Medicaid population.

Other Collaborations

- Economic Development – to assure homes with lead are safely remediated
- MO Attorney General – to assure lead investigations and remediations occur
- MO Housing Development Commission – to facilitate funding for lead remediation
- Caring Communities – to incorporate lead awareness and safety within communities
- The CDC, EPA, HUD, ATSDR – program management guidance

Section 4.0 Public Health Nursing, and Medical Management Subsection Table of Contents	Page 1 of 1
	Revised

**Public Health Nursing, Nutrition, Hygiene and Medical Management
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4.12	Nursing Care Plans
4.13	Medical Management – Clinical and Developmental Effects – Lab Tests – Acute Ingestion – And Chelation Therapy

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Public Health Nursing Case Management

The public health nurse as a member of the public health team is involved in the **prevention, detection, and case management** of lead-poisoned children. As such, she/he will be an integral participant in all of the activities and will team up with the child's physician, parents/family, environmental assessor etc., in an effort to assist with medical management

Not enough can be said regarding the importance of using a holistic team approach to managing lead-poisoned children. Often the needs of these children and families are complex and require a multi-disciplinary effort. Team members should be able to assess the abilities of the child and family as a whole in determining strengths and weaknesses in dealing with all issues related to the elevated blood lead child. In today's complex medical system, families find difficulty just "navigating" the system itself and are not always capable of overcoming obstacles to care and treatment as they present themselves. The team approach to managing lead cases requires individuals that have good assessment, communication, thinking, and problem solving skills. The nurse case manager, child, family/caregiver, child's primary care physician, health plan, nutritionist, licensed risk assessor, and other community resource agencies should come together and work as a team to achieve desired goals/outcomes. Effective usage of manpower, strong collaboration and financial resources can lead to prevention and reduction of lead poisoning, along with healthier children, and stronger, more knowledgeable/responsible families and communities.

The nurse's role is defined by the nursing profession and professional standards, which guide nursing practice.

The American Nurses' Association establishes the following nine standards for the public health nurse.

- STANDARD I. The nurse applies theoretical concepts as a basis for decisions in practice.
- STANDARD II. The nurse systematically collects data that is comprehensive and accurate.
- STANDARD III. The nurse analyzes data collected about the individual, family, and community in an effort to determine diagnoses.
- STANDARD IV. At each level of care management, the nurse develops plans that specify nursing actions unique to client needs.
- STANDARD V. The nurse, guided by the plan, intervenes to promote, maintain, or restore health, to prevent illness, and to effect rehabilitation.
- STANDARD VI. The nurse evaluates responses of the individual, family, and community as they relate to specific interventions in order to determine progress toward goal achievement and to revise the database, diagnoses, plan and goals if indicated.

STANDARD VII. The nurse participates in peer review and other means of evaluation to assure quality of nursing practice. The nurse assumes responsibility for professional development and contributes to the professional growth of others.

STANDARD VIII. The nurse collaborates with other health care providers, professionals, and community representatives in assessing, planning, implementing, and evaluating programs for community health.

STANDARD IX. The nurse contributes to theory and practice improvements in community health nursing through research.

As the professional nurse applies these standards to lead poisoning prevention activities, he/she is in a position to detect environmental hazards, (of which lead is an example) and help clients learn how to maintain a safe environment. Often the nurse administers preventive screening test, and teaches the client and family about the changes in lifestyle that can minimize or eliminate the environmental hazard.

LEAD POISONING SCREENING

A complete lead screen consists of a verbal/written risk assessment, physical evaluation, and blood test(s) when indicated. Additionally, comprehensive screening of children for the presence of lead includes two steps: the interview assessment to determine risk status, and the blood test to determine lead level. In screening, blood is usually collected by the capillary method (*see Subsection 4.4*). Confirmation of an elevation (10 micrograms /deciliter or greater) is then done by venous collection (*see Subsection 4.5*). In some situations, however, it is appropriate to collect a venous specimen initially rather than the capillary specimen. If the Risk Assessment process indicates a definite high risk (i.e. more than one identified risk factor, other lead-poisoned children in the home, a lead-poisoned parent, or a known lead-contaminated environment), the health care professionals should use their judgement to determine the most appropriate collection method before performing the procedure. Medicaid children must be screened at 12 and 24 months regardless of the response to the health-screening questionnaire or at any time between 12 and 72 months of age if the child has not been previously tested for lead. Missouri Department of Health and Senior Services recommends all children be tested at least twice in the first 24 months of life. See Diagram #1 part A & B MDHSS Childhood Blood Lead Testing and Follow Up Guidelines. MDHSS recommends that all children be tested at 12 and 24 months regardless of the payor source.

DIAGRAM #1 Part A

Childhood Blood Lead Testing and Follow-Up Guidelines

A Blend of Recommendations Made by the Centers for Disease Control and the American Academy of Pediatrics and Agreed to by the Missouri Dept of Health and Div of Medical Services

1. Perform a blood lead test for all children at least twice in the first 24 months of life --- HCFA/MO Medicaid requires a blood test at 12 and 24 months.
2. If a child has no documented blood test at any time between 12 and 72 months of age, a blood test should be performed immediately.

INITIAL Childhood Blood Lead Tests May Be Performed By Capillary Or Venous Method

If the initial test is obtained by:

- ☒ Capillary fingerstick, and the result is 10 mcg/dl or greater, it **MUST** be confirmed by venous blood within the timeframes indicated below.
- ☒ Venous blood draw, proceed with appropriate retest intervals and follow-up.

INITIAL Blood Test Results	Confirm Using Venous Blood Within:	Venous Retest Intervals	Follow-Up
<10 mcg/dl	N/A	Reassess or re-test within 1 year.	No action required unless exposure sources change.
10-19 mcg/dl	2 months	2-3 month intervals Note: If 2 venous tests, taken <u>at least</u> 3 months apart, both result in elevations of 15 mcg/dl or greater, proceed with retest intervals and follow-up for BLLs of 20-44.	1. Provide family lead education. 2. Provide follow-up testing. 3. Refer for social services, if necessary. Note: If 2 venous tests, taken <u>at least</u> 3 months apart, both result in elevations of 15 mcg/dl or greater, proceed with retest intervals and follow-up for BLLs of 20-44.
20-44 mcg/dl	2 weeks*	1-2 month intervals until the following 3 conditions are met: 1. BLL remains less than 15 mcg/dl for at least 6 months. 2. Lead hazards have been removed. 3. There are no new exposures.	Same as 1-3 above, plus: 4. Assure coordination of care (case management) either through the HMO, provider or Local Public Health Agency. 5. Provider assures medical management. 6. Call Local Public Health Agency to provide environmental investigation and to assure lead-hazard control.
45-69 mcg/dl	2 days*	When the above conditions have been met, proceed with retest intervals and follow-up for BLLs 10-19.	Same as 1-6 above, plus: 7. Within 48 hours, begin coordination of care (case management), medical management, environmental investigation , and lead hazard control. 8. A child with a confirmed BLL >44mcg/dl should be treated promptly with appropriate chelating agents and not returned to an environment where lead hazard exposure may continue until it is controlled.
70+ mcg/dl	IMMEDIATELY*		9. Hospitalize child and begin medical treatment immediately. Begin coordination of care (case management), medical management, environmental investigation , and lead hazard control immediately. 10. BLLs >69 mcg/dl should have an urgent repeat venous test, but chelation therapy should begin immediately (not delayed until test results are available).

* The higher the testing level, the more urgent the need for a confirmatory test.

Mar-00

DIAGRAM #1 Part B

Have a Child that needs an Environmental Investigation for Lead?



Call your Local City/County Public Health Agency

...Or contact the Missouri Department of Health and Senior Services at 1-800-392-0272.

The Missouri Public Health System provides environmental investigations to detect the hazardous sources of lead exposure in children's' homes. This service is provided free of charge for all children under the age of six who have a confirmed blood lead level of 20 µg/dl or greater, or two confirmed blood lead levels of 15 µg/dl or greater that are taken at least 3 months apart.

For other circumstances, an Environmental Lead Risk Assessment may be obtained by hiring a private Lead Risk Assessor. Contact the Office of Lead Licensing and Accreditation at 1-888-837-0927 for a listing of licensed Lead Risk Assessors in your area.

Need Advice about Medical Management for Lead Poisoning?



Call the Missouri Department of Health and Senior Services at 1-800-392-0272.

You will be put in touch with a physician in your area that has experience and knowledge in dealing with lead poisoning.

Need Direction for the Case Management of Elevated Blood Lead Levels?



Call your HMO or Local City/County Public Health Agency

...Or contact the Missouri Department of Health and Senior Services at 1-800-392-0272.

HMOs and the Missouri Public Health System are experienced and knowledgeable in effectively dealing with elevated blood lead cases, including referrals for educational, nutritional, housing, and other related social service needs.

999 (3-00)

Periodicity Screening Guidelines for Medicaid Eligible Children HCY Screening Guide

Medical Screening Requirements for EPSDT/HCY Full Medical Screen

Missouri has adopted the American Academy of Pediatrics' (AAP) schedule for preventive pediatric health care as a minimum standard for frequency of providing full HCY screens for Medicaid eligible children and youth between the ages of birth and 21 years. The periodicity schedule for dental screens is more frequent than the AAP recommendation.

A full medical HCY Screen must include the components shown on the sample HCY Screening Tool and must be fully documented in the patient's medical record. Providers are encouraged to use the Healthy Children and Youth Screening Guide to document the screening service provided.

When the HCY Screening Guide is used to document a full medical screening service, it is important to remember that this form is only a guide to the age appropriate activities or levels of achievement addressed during the screen. The professional judgment of the physician or nurse practitioner is always necessary for the determination of appropriate screening measures. In some instances, it is not always possible to complete all components of the full medical HCY screening service. For example, immunizations may be medically contraindicated or refused by the caregiver. The caregiver may also refuse to allow their child to have a lead blood level test performed. When the caregiver refuses immunizations or appropriate lab tests the provider should attempt to educate the caregiver with regard to the importance of these services. If the HCY screening form is not retained in the patient's file as documentation, the medical record must fully document that all the components of the screen billed to Medicaid were provided. If the caregiver continues to refuse the service, the child's medical record must document the reason the service was not provided. Documentation may include a signed statement by the caregiver that immunizations, lead blood level tests, or lab work was refused. By fully documenting in the child's medical record the reason for not providing these services, the provider may bill a full medical HCY Screening service even though all components of the full medical HCY Screening service were not provided. Only a physician or nurse practitioner may provide full medical screening.

Components of a Full HCY Medical Screen

- A comprehensive unclothed physical examination
- A comprehensive health and developmental history including assessment of both physical and mental health development
- Health education (including anticipatory guidance)
- Appropriate immunizations according to age
- Laboratory tests as indicated (appropriate according to age and health history unless medically contraindicated)
- Lead screening according to established guidelines
- Hearing screening
- Vision screening
- Dental screening

NOTE: Reimbursement for immunizations and laboratory procedures is not included in the screening fee and may be billed separately

PERIODICITY SCHEDULES

Full HCY Medical Screen

2-3 days-one month	4 years
2-3 months	5 years
4-5 months	6-7 years
6-8 months	8-9 years
9-11 months	10-11 years
12-14 months	12-13 years
15-17 months	14-15 years
18-23 months	16-17 years
24-35 months	18-19 years
3 years	20 years

The periodicity schedule represents the minimum requirements for frequency of full medical screening services. Its purpose is not to limit the availability of needed treatment services between the established intervals of the periodicity schedule. If it is not medically necessary for a full medical screen (W0025XC or W0025XD) to occur more frequently than the suggested periodicity schedule, at least a screen should be provided. There must, however, be documentation in the patient's medical record, which indicates the medical necessity of the additional full medical screening service for appropriate Medicaid payments to be made. Medicaid recently revised the HCY screening guides. The most current version is dated (10/01)

The periodicity schedules provided above are for the identifying the minimum standards for regular well childcare. At any point that a health care professional who is qualified to perform screening services determines that a screening service is medically indicated more frequently than the recommended periodicity schedule, it is appropriate for the screening service to be provided

Partial Screens

Different providers may provide segments of the full medical screen. Qualified providers should give partial screens as appropriate for a child's need. The purpose of partial screens is to increase access to care for all children and to allow providers reimbursement for the separate screens.

Dental Screens

Age appropriate dental screens are available to children, from birth until they become 21 years of age, on a periodicity schedule that is different from that of the full HCY medical screen.

A child's first visit to the dentist should occur no later than 12 months of age so that the dentist can evaluate the infant's oral health, intercept potential problems such as nursing caries, and educate parents in the prevention of dental disease in their child. It is recommended that preventive dental services and oral treatment for children begin at age 6-12 months and be repeated every six months or as medically indicated.

When a child receives a full medical screen by a physician or nurse practitioner it includes an oral examination, which is not a full dental screen. A referral to a dental provider must be made where medically indicated when the child is under the age of 1 year. When the child is 1 year of age or older a referral must be made, at a minimum, according to the dental periodicity schedule. The physician or nurse practitioner may not bill the dental screening procedure (W0025XK or W0025XL) separately.

Vision Screening Schedule

Once a year from age 3 years to 21 years.

Hearing Screening Schedule

Once a year from age 3 years to 21 years.

Immunizations

Immunizations must be provided during a full medical HCY screening unless medically contraindicated or refused by the parent or guardian of the patient. When an appropriate immunization is not provided, the patient's medical record must document why the appropriate immunization was not provided. Immunization against Inactivated Polio, Measles, Mumps, Rubella, Pertussis, Diphtheria, Tetanus, Haemophilus influenza type b, Hepatitis B, [Hepatitis A, and Influenza in selected populations] Varicella and Pneumococcal are recommended to be provided according to the schedule which incorporates the Advisory Committee on Immunization Practices (ACIP), American Academy of Pediatrics (AAP) and Centers for Disease Control (CDC) recommendations.(Immunization listing taken from the United States 2002 Schedule)

Mandatory Screening for Lead Poisoning

- All children must receive a blood lead level test at 12 and 24 months.
- All children between the ages of 12 months and 72 months of age who have not received a lead screen MUST be screened at their next HCY (well child) screening regardless of the risk factor.

For all Medicaid children between 6 months and 72 months, the provider must attempt to determine at the initial visit whether or not there are risk factors present which would expose the child to lead. If there are risk factors present, the provider must perform blood lead level testing. Thereafter, the HCY Lead Screening Guide must be used at each HCY screening interval to determine that there have been no changes in the child's living arrangements or that none of the other risk factors have changed since the last screen.

HCY Lead Screening Guide

The HCY Lead Screening Guide must be used to complete the lead risk assessment component of the HCY full or partial screen for children ages six to seventy two months of age that are enrolled in the Medicaid program. It may also be used with children not enrolled in the Medicaid program. The HCY Lead Screening Guide may be ordered from GTE Data Services, P.O. Box 5600, Jefferson City, MO 65102, or by checking the appropriate item on the Claims Form/Labels Reorder Form. It may also be ordered by calling Medicaid Provider Relations at 1-800-392-0938 (see forms Section) (See Medicaid Lead Screening Guide-Diagram #2 parts A&B)

Case Management Activity for Managed Care Clients with an Elevated blood lead Level

For those children who are enrolled in the MC+ Managed Care Program the health plan will be responsible for provision of the lead case management services, per Medicaid managed care Policies.

- A. HCY Case Management is an activity under which responsibility for locating, coordinating and monitoring necessary and appropriate services for a recipient rests with a specific individual or organization. It centers on the process of collecting information on the health needs of the child, making (and following up on) referrals as needed, maintaining a health history, and activating the examination/diagnosis/treatment "loop."

- B. Children with blood lead levels of greater than 20 micrograms/deciliter or greater OR two confirmed blood lead levels of 15 micrograms per deciliter or greater, taken at least three months apart must receive lead case management services.
- C. A minimum of three-client/family case management encounters, all face-to-face, are mandatory.

Local health departments who want to continue to provide lead case management services should enter into agreements with the health plans. The health plans are not being required by the Department of Medical Services to contract with any particular outside entities for HCY or case management of children with elevated blood lead levels.



MISSOURI DEPARTMENT OF SOCIAL SERVICES
 DIVISION OF MEDICAL SERVICES
HCY LEAD RISK ASSESSMENT GUIDE

This Guide must be used to complete the Lead Risk Assessment component of the HCY full or partial screen for all MC+/Medicaid eligible children from 6 to 72 months.

NAME		MC+/MEDICAID #		DATE OF BIRTH		A BLOOD LEAD TEST IS RECOMMENDED AT LEAST TWICE BEFORE 24 MONTHS. HCFA/DIVISION OF MEDICAL SERVICES REQUIRES BLOOD TESTING AT 12 AND 24 MONTHS.					
Any child ages 6 months to 72 months with a positive response to any of the following questions is at risk and must receive a blood lead test immediately.	DATE ASSESSED										
	AGE	6-8 MO.	9-11 MO.	12-14 MO.	15-17 MO.	18-23 MO.	24 MO.	3 YRS.	4 YRS.	5 YRS.	6 YRS.
Have siblings or playmates with lead poisoning?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Live in or regularly visit a house or day care built before 1950?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Reside in or visit a house built before 1978 with chipping paint or remodeling within the last six months.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
*Mouth or eat non-food items (pica)?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Play in bare soil or reside in a lead smelting area?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Reside with an individual that works with or has hobbies using lead?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
**Receive unusual medicines or folk remedies?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the child between 12 & 72 months, and has never received a blood lead test?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
*A perversion of appetite with craving for substances not fit for food, such as dirt, starch, clay, ashes or plaster.											
EXPOSURE PATHWAYS <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> OCCUPATIONAL Plumbers, pipe fitters Brass/copper foundry Lead Miners Lead smelters and refiners Auto repairers Bridge reconstruction workers Glass manufacturers Shipbuilders Printers Plastics manufacturers Policeman Steel welders and cutters Construction workers Battery manufacturers Gas station attendants Chemical and chemical preparation manufacturers Industrial machinery and equipment operators </div> <div style="width: 30%;"> **TRADITIONAL MEDICINES AND COSMETICS (such as) Asian-Chuifong tokuwan, pay-loo-ah, ghassard, bali goli, and kandu Mexican-azarcon and greta (also known as liga, Maria Luisa, alarcon, coral and rueda) Middle Eastern-alkohl, kohlr, surma, saoot, cebagin SUBSTANCE USE Gasoline "huffing" "Health foods" Cosmetics Moonshine Whiskey </div> <div style="width: 30%;"> HOBBIES AND RELATED ACTIVITIES Glazed pottery making Target shooting at firing ranges Reloading cartridges Lead soldering (e.g., electronics) Painting Preparing lead shot, fishing sinkers, bullets Stained-glass making Car or boat repair Home remodeling Furniture refinishing Casting lead figures (toy soldiers, etc.) </div> <div style="width: 30%;"> ENVIRONMENTAL Mini-blinds Crayons (imported) Lead painted homes Leaded gasoline Lead soldered cans (imported) Lead crystal Proximity to lead related industries Paint containing lead Soil/dust near industries, roadways Plumbing leachate Ceramic-ware/pottery Jewelry (metal based) </div> </div>											
NOTE: Results of blood tests may be recorded on the reverse side of this form. Retest intervals and interventions for elevated blood levels are described on the reverse side of this form.											

Diagram # 2, Part B

NAME		MC+/MEDICAID #		DATE OF BIRTH		A BLOOD LEAD TEST IS RECOMMENDED AT LEAST TWICE BEFORE 24 MONTHS. HCFA/DIVISION OF MEDICAL SERVICES REQUIRES BLOOD TESTING AT 12 AND 24 MONTHS.					
BLOOD LEAD LEVEL TEST – (CAPILLARY or VENOUS) <ul style="list-style-type: none"> A blood lead test is required at 12 and 24 months of age. Children between the ages of 12 months and 72 months of age must receive a blood lead test if they have not been previously tested for lead. A blood lead test is required if a positive response to any questions on reverse. 											
DATE OF BLOOD LEVEL TEST ▶											
LEAD LEVEL Circle (C) Cap. (V) Venous ▶		V C	V C	V C	V C	V C	V C	V C	V C	V C	V C
DATE OF BLOOD LEVEL TEST ▶											
LEAD LEVEL Circle (C) Cap. (V) Venous ▶		V C	V C	V C	V C	V C	V C	V C	V C	V C	V C
DIAGNOSIS, TREATMENT and FOLLOW-UP – If a child is found to have blood lead levels equal to or greater than 10 mcg/dL in an initial blood test result obtained by capillary specimen (finger stick) confirmation by a venous sample must be completed as indicated. Providers are encouraged to implement patient management and treatment, including follow-up blood tests and referral for environmental assessments when appropriate or where indicated. NOTE: Results above 19 mcg/dL require special intervention (see below).											
CHILDHOOD BLOOD LEAD TESTING AND FOLLOW-UP GUIDELINES <small>(A blend of Recommendations Made by the Centers for Disease Control and the American Association of Pediatrics and agreed to by the Missouri Department of Health and the Division of Medical Services)</small>											
INITIAL BLOOD LEAD TEST RESULTS	CONFIRM USING VENOUS BLOOD WITHIN:	VENOUS RETEST INTERVALS		FOLLOW-UP							
<10 mcg/dl)	N/A	Reassess or re-test within 1 year.		No action required unless exposure sources change							
10-19 (mcg/dl)	2 months	2-3 month intervals Note: If 2 venous tests, taken at least 3 months apart, both result in elevations of 15 mcg/dl or greater, proceed with retest intervals and follow-up for BLLs of 20-44.		1. Provide family lead education. 2. Provide follow-up testing. 3. Refer for social services, if necessary. Note: If 2 venous tests, taken at least 3 months apart, both result in elevations of 15 mcg/dl or greater, proceed with retest intervals and follow-up for BLLs of 20-44.							
20-44 (mcg/dl)	*2 weeks	1-2 month intervals until the following 3 conditions are met: 1. BLL remains less than 15 mcg/dl for at least 6 months. 2. Lead hazards have been removed. 3. There are no new exposures.		Same as 1-3 above, plus: 4. Assure coordination of care (case management) either through the HMO, Provider or the Local Public Health Agency. 5. Provider assures medical management. 6. Call Local Public Health Agency to provide environmental investigation and to assure lead-hazard control.							
45-69 (mcg/dl)	*2 days	When the above conditions have been met, proceed with retest intervals and follow-up for BLLs 10-19.		Same as 1-6 above, plus: 7. Within 48 hours, begin coordination of care (case management), medical management, environmental investigation , and lead hazard control. 8. A child with a confirmed BLL >44 mcg/dl should be treated promptly with appropriate chelating agents and not returned to an environment where lead hazard exposure may continue until it is controlled.							
70+ (mcg/dl)	*IMMEDIATELY			9. Hospitalize child and begin medical treatment immediately. Begin coordination of care (case management), medical management, environmental investigation , and lead hazard control immediately. 10. BLLs >69 mcg/dl should have an urgent repeat venous test, but chelation therapy should begin immediately (not delayed until test results are available.)							
<i>*NOTE: The higher the screening level, the more urgent the need for a confirmatory test.</i>											
IF YOU HAVE ANY FURTHER QUESTIONS REGARDING CHILDHOOD LEAD POISONING PREVENTION, PLEASE CONTACT THE DEPARTMENT OF HEALTH AT 1-800-575-967 OR 573-526-4911.											

Section 4.0 Public Health Nursing and Medical Management Subsection 4.3 MDHSS Lead Screening Questionnaire Instructions and Risk Assessment Tool	Page 1 of 2
	Revised

MDHSS Lead Screening Questions and Risk Assessment Tool

The Missouri Department of Health and Senior Services lead screening questions are to be used with all children who are not enrolled in the Medicaid program. These questions are similar to questions on the Medicaid HCY Lead Risk Assessment Guide, which can also be used for non-Medicaid patients. (See Diagram #3 MDHSS Lead Poisoning Risk Assessment Tool)

Purpose

Traditionally, the main purpose of a childhood lead screening program has been to identify asymptomatic lead-poisoned children. These questions were developed to assist the health care professional in assessing the level of risk a client may have for lead poisoning. It is designed to guide the initial assessment of risk and to be an adjunct to blood testing.

Rationale

Children are at higher risk developmentally for lead exposure. They have more hand-to-mouth activity and their systems absorb more lead than adults. Childhood lead poisoning is often silent with no manifestation of symptoms. Many factors interplay in lead exposure and toxicity in children. Research has shown that a verbal assessment of risk examining the exposure pathways done in conjunction with a blood lead level is a comprehensive approach in identifying children who are lead poisoned.

Procedure

The questions are designed to be self-administered by the child's caregiver. **It is important that the child's name, date of birth and date assessment is performed be included at the top of the assessment tools. [The health care professional shall review all the questions and responses with the parent/caregiver, to clarify any uncertain or absent responses.]

Determining Risk

Risk is determined from the response to the questions. The risk may be categorized as high or low risk. Confirming risk status is determined by the health care professional using open-ended questions to obtain solid answers regarding lead exposure. Any child ages 6 months to 72 months with a positive response to any of the following questions is at risk and must receive a blood test immediately. If the parent or caregiver "doesn't know", the question should be considered as if a positive answer was made. Further information should be elicited to confirm the existence of risk status. A negative response to all answers determines the client to be at low risk. If a client has been assessed negative for risk, it does not mean the client cannot be exposed and demonstrate a risk in the future.

Mandatory Lead Testing Program

The Missouri Legislature passed a law* in 2001, 701.340-701.349RSMo, which makes blood lead testing mandatory in certain high risk areas. Those high risk areas are to be determined by the MDHSS. As soon as rules are promulgated clarifying implementation of the law, they will be distributed to the medical community and those persons in possession of the MDHSS Lead Manual.

*This new law, however, does not alter the mandate Medicaid has for testing of all Medicaid children at 12 and 24 months of age.

MDHSS LEAD MANUAL DIAGRAM #3

MISSOURI LEAD POISONING RISK ASSESSMENT TOOL

Evaluate Lead Poisoning Risk at Each Health Care Visit (at least annually up to 72 months of age in order to determine if the health risk for lead has changed).

Does the child...

- () Have siblings or playmates who have (or did have) lead poisoning?
- () Live in or frequently visit a house or daycare built before 1950?
- () Reside in or visit a house built before 1978 with recent or on going renovations or remodeling within the last six months?
- () Eat or mouth non-food items - pica? (a perversion of appetite with craving for substances not fit for food, such as dirt, starch, clay, ashes, plaster, etc.)
- () Play in bare soil or reside in a lead smelting area?
- () Reside with an individual that works with or has hobbies using lead?
- () Receive unusual medicines or folk remedies?

If answer is yes to any of the above, then perform a blood lead test.

Who should be tested?

- REGARDLESS OF RISK FACTORS, a blood lead test is indicated for all children at least twice in the first 24 months of life.
- PREGNANT WOMEN who are at risk by history.

Lead poisoning is not easy to detect. Sometimes no symptoms occur, and sometimes the symptoms are the same as those of more common illnesses. Some of the early signs and symptoms of lead poisoning in children are—

- ◆ Persistent tiredness or hyperactivity.
- ◆ Irritability.
- ◆ Loss of appetite.
- ◆ Weight loss.
- ◆ Reduced attention span.
- ◆ Difficulty sleeping.
- ◆ Constipation.

Health Effects of Lead Exposure

CHILDREN

Low Level Exposure

- behavior disorders
- learning disabilities
- hyperactivity
- growth failure
- developmental delay
- hearing loss

High Level Exposure

- abdominal pain
- anemia
- encephalopathy
- unexplained seizures

ADULTS

Low Level Exposure

- constipation
- wrist drop
- joint pain
- memory loss
- concentration difficulties

High Level Exposure

- abdominal pain
- anemia
- encephalopathy
- infertility

Note: Often there are no overt symptoms when blood lead levels are moderately elevated.

Section 4.0 Public Health Nursing and Medical Management Subsection 4.4 Capillary (Fingerstick) Blood Sampling Procedure	Page 1 of 4
	Revised

Capillary (Fingerstick) Blood Sampling Procedure

This procedure is one component of the screening for lead poisoning. Lead is present on clothing, skin, and other articles in the environment. It is important that the procedure be carefully followed so the blood specimen is not contaminated by environmentally available lead dust.

Equipment Needed

soap

1 pair latex gloves (wear gloves throughout the procedure)

white paper towels (do not use paper towels from recycled paper)

1 sterile alcohol pad

1 lancet

1 capillary blood collection tube

2 2 x 2 sterile gauze pads

1 small adhesive bandage

1 capillary sample lab form (lab form 13, 3/02)

mailer

container for sharps; waste

Handwashing Instructions

It is important to wash the client's hands including front and back, in-between the fingers, around the nails, and underneath the nails to get a correct test.

Use Liquid Soap

1. Wet hands, **apply** soap and lather well. (You may want to use a soft brush to help clean the nail area)
2. Rinse hands well letting the water run down the wrist into the sink.
3. Dry with a paper towel and then get a clean paper towel and wrap this around the hand.
4. Keep the paper towel over the entire hand. The caregiver can assist you by holding the towel in place.

Note: Puncturing of the fingers of infants less than 1 year of age is NOT recommended. Puncturing of the heel is more suitable for these children. (NCCLS-1986) and CDC Preventing Lead Poisoning in Young Children October 1991.

Instructions for Use

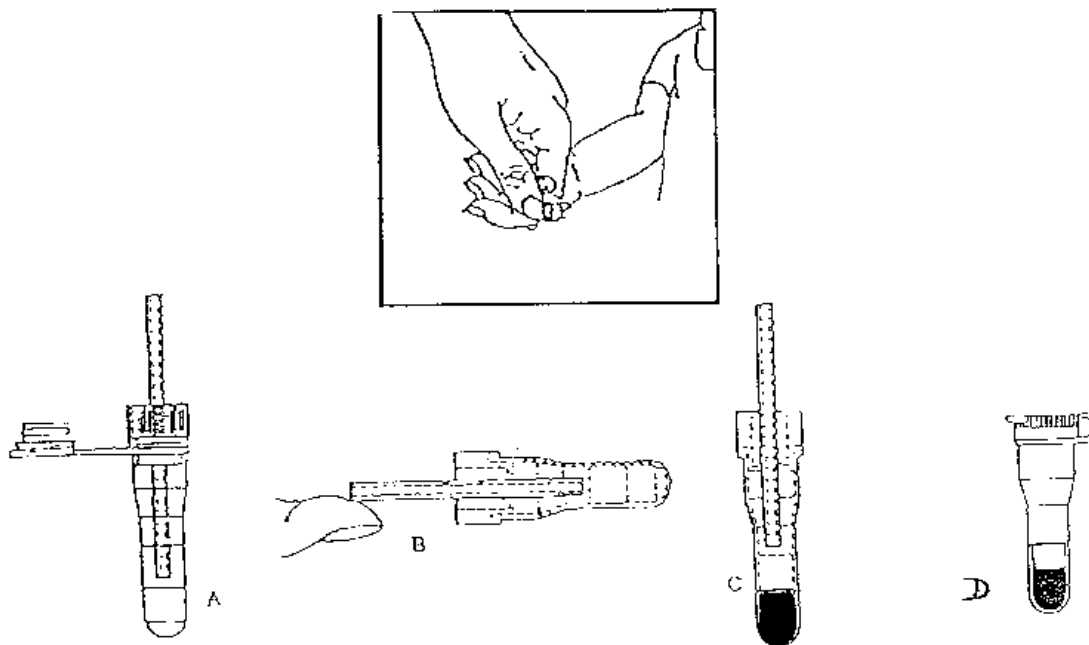
1. The capillary device is completely assembled and ready to use.

Drawing blood with this plastic capillary is the same as with regular glass capillary except that the blood flows directly into the attached tube. If more blood is needed, just keep it flowing continuously.

It is important that the flow of blood be adequate enough to fill the capillary rapidly. Do not stop to shake or tap the tube until you have drawn the amount of blood needed.

2. IMPORTANT: To capillary collection device must be held in a horizontal position during collection of the sample. Rotate the collection device periodically during collection to maintain contact with the anti-coagulant in the pipette.
3. After filling device to appropriate level, turn the capillary unit immediately in a vertical position and tap on counter/table to allow blood to flow into the device.
4. Remove pipette with holder at the same time. Close tube with attached cap. Mix by rocking the tube back and forth for about 15 seconds or centrifuge blood sample.

DIAGRAM #4



A= Capillary sampling device

B= Pipette in the horizontal position (remember to rotate the tube as you fill to maintain contact with the anti-coagulant in the pipette and tube)

C= Upright sample filled with at least 250 microliters (1/4 of a cc.)

D= Capped sample

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Method of Collection:

1. Instruct the child (if age appropriate) and the parent/caregiver about the need for the procedure and how it is done.
2. Explain to the parent/caregiver how they can assist you in doing the procedure: holding/restraining the child, comforting the child. Consider use of “therapeutic hugging” (a secure, comfortable holding position, usually sitting, that provides close physical contact with the parent or other trusted caregiver).
3. Assure both parent and child that you will perform the procedure as quickly and safely as you can. Also tell them that you will only try the procedure two times if you have not been able to obtain the blood on the first attempt. Let the child know that to cry is acceptable. Instruct the parent/caregiver when the results should be available and how they will be notified.
4. Open the supplies being careful not to contaminate any part of them. (All supplies should be lead free and individually wrapped. Place sampling items on a clean paper towel. You may want to cover the supplies until use, so the child doesn’t become more frightened looking at the equipment)
5. Wash your hands and put on gloves. Remove any powder that might be on the gloves by washing under running water.
6. After removing the paper towel, grasp the client’s hand so that your thumb is across the top of the child’s fingers.
7. Hold the child’s hand so that the palm faces him/her.
8. Use the child’s middle or ring finger for the sample. Check the finger for any signs of injury or infection before using. (You may want to briefly massage the fleshy portion of the finger gently, or let the child hang fingers down to help stimulate blood flow)
9. Expose the finger selected for procedure. Clean the fingertip with the alcohol pad. Let the finger dry.
10. Using the lancet, stick the finger slightly left of center. (The child may be distracted by asking questions or talking to him/her in a soothing fashion.)
11. The first drop of blood should be wiped away with a clean dry cotton ball or gauze. (This drop contains tissue fluids that compromise the sample)
12. Let a well beaded drop of blood form at the puncture site holding the finger horizontally (see diagram #4) so as to not let the blood run down the finger/fingernail and fill the collection tube with at least 250 microliters of blood. (Per State Lab --250 microliters of blood = 1/4 cc)
13. Put the capillary tube horizontal or at a slightly down ward slant to fill. (Blood flows better if the punctured finger is kept lower than the heart). Filling of the collection device should be performed quickly and efficiently as delay can make collection more difficult (for example the blood may clot or the child may resist). Maintain a continuous flow of blood and rotate the tube/pipette as you fill the collection device to keep contact with the anti-coagulant in the pipette and specimen tube. Avoid using the pipette in a “scraping motion” along the puncture site as this may change the quality of the sample. The tube should not be wiped prior to filling and care should be taken not to touch the tip of the capillary tube with anything but the blood.
14. Wipe the child’s finger with gauze and have the parent or caregiver apply pressure to the puncture site to stop any bleeding.
15. Disassemble collecting device carefully as to not contaminate lid.
16. Close the tube being careful not to contaminate the closure cap.
17. Immediately mix the blood thoroughly with the anti-coagulant by gently rocking the tube back and forth for 30 seconds.

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18. Label the specimen appropriately and store in the refrigerator until sent to the laboratory. (Complete Lab form 13 (3/02) (See SPHL Guidelines Section 2. 0).
19. Check the puncture site for bleeding. Apply pressure until site closed. Secure with an adhesive bandage. Praise the child's efforts at trying to cooperate with the procedure. Parent/caregiver instruction should be given about prevention of lead poisoning.
20. Document in the client records the procedure and sample collection, and instructions to the parent/caregiver and any unusual circumstances occurring during the procedure.

Alternate Handwashing Procedure for Capillary (Fingerstick) Procedure

This procedure is outlined for use in those instances when it is necessary to obtain a blood lead specimen on a client and there are inadequate hand washing facilities. It is important to keep in mind that proper preparation and cleaning of the finger to be used is necessary to prevent specimen contamination. Additionally, this procedure is not a replacement for the previously outlined technique.

Prior to beginning, the nurse should put gloves on and wipe the gloves, using a disposable wet-wipe or alcohol sponge to eliminate any powder. Supplies should be laid out on lead-free, paper towels. These supplies include:

- 2 alcohol pads
- lancet (size determined by age of client and site)
- capillary blood collection tube
- 1 capillary lab form (lab form 13, 3/02)
- hazardous waste container
- sharps container
- 2x2 gauze
- adhesive bandage

A caregiver may place a child on her lap to assist in controlling the child.

Procedure

1. Clean finger with alcohol pad
2. Dry with gauze

Obtain specimen following previously outlined capillary procedure

Filter Paper Blood Lead Testing

The CDC believes that Filter Paper techniques are acceptable for blood lead testing if health care providers ensure that, as with all blood lead test methods, the chosen laboratory is participating satisfactorily in CLIA certified proficiency testing (PT) Program. The revised CDC position is not an endorsement of the use of filter paper over other techniques for the purpose of sample collection or analysis for blood lead. Nor is this an endorsement of filter paper lead testing by DHSS. It is mentioned within this manual to provide knowledge regarding other possible methods to accomplish the initial blood lead testing of children. For additional information, contact the nurse in the MDHSS Childhood Lead Poisoning Prevention Program.

Section 4.0 Public Health Nursing and Medical Management Subsection 4.5 Venous Blood Sampling Procedure	Page 1 of 2
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Public Health Nursing, Nutrition, Hygiene and Medical Management

Venous Blood Sampling Procedure

Equipment Needed

disposable gloves
 universal precautions, (wear gloves throughout the procedure)
 tourniquet
 vacuated phlebotomy tubes (tan top, lead free with label)
 butterfly needle with tubing (check the date on the tube label to make certain the tube has not expired laboratory slip)
 alcohol pledget
 mailing package
 sharps disposal container
 ice or refrigerator for storage

Method of Collection:

1. Instruct the child (if age appropriate) and the parent/caregiver about the need for the procedure and how it is done. Tell the parent/caregiver when the results will be known and how they will be informed of the results.
2. Explain to the parent/caregiver how they can assist you in doing the procedure: holding/restraining the child, comforting the child. Consider use of “therapeutic hugging” (a secure, comfortable holding position, usually sitting, that provides close physical contact with the parent or other trusted caregiver).
3. Assure both parent and child that you will perform the procedure as quickly and safely as you can. Also tell them that you will only try the procedure two times if you have not been able to obtain the blood on the first attempt. Let the child know that to cry is acceptable.
4. Assemble all the equipment on a clean towel/surface. (you may want to cover the equipment until used so the child doesn’t become more frightened by looking at the equipment).
5. Wash your hands thoroughly.
6. After drying your hands, put on gloves. If they are powdered, rinse the powder off and dry thoroughly.
7. Examine both arms and hands to locate the vein that you assess as being appropriate for obtaining the venous specimen. (you may want to apply a warm compress to the site to help dilate the vein if needed).
8. Apply the tourniquet so that it can be easily released using 1 hand. Ask the child to squeeze their fist several times. Wipe the selected vein with an alcohol pad.
9. Allow the area to dry. Insert the needle into the selected vein and look for blood flow into the tubing. (emphasize to the age-appropriate child that the blood entering the syringe or tube doesn’t take all their blood away and that they have a lot more inside).

10. Immediately attach the needle at the end of the tubing into the tube stopper and allow the blood to flow into the tube, filling it with at least 1ml (milliliter) of blood for the venous sample.
11. Remove the tourniquet and remove the needle from the child's arm. Dispose of needle in sharps container.
12. Cover the site with a sterile sponge, applying pressure to the puncture site for a few minutes. Instruct the parent or child (if they are able) to hold the sponge in place, bending the arm if using the antecubital aspect and pointing the fingers to ceiling, if necessary.
13. Gently agitate the specimen 10-15 times to mix the anticoagulant through the blood sample adequately. Attach the label to the vacutainer tube, making sure that the correct and complete information is included (complete name, date of collection, address of the child, agency name and address, DOB, and doctor name, if appropriate).
14. Check the child's arm for bleeding. If no free flowing blood, cover with an adhesive bandage. Praise the child for their cooperation, etc.
15. Complete the laboratory form, 13c (blood lead analysis-venous 3/02) unless you have done so prior to doing the procedure. Confirm with the parent that information on the form is correct. Fill in all the spaces completely and legibly. Be sure that the information is clear on all copies of multi-paged forms (NCR).
16. Prepare the specimen for mailing according to the laboratory instructions and your agency's policy. The plastic centrifuge tube is an inner mailing container for blood samples. All blood samples must be packed in the plastic inner mailing container and then placed in the outer cardboard return mailer with the address label

NOTE: If it is not possible to mail the samples the day that they are obtained, refrigerate them until they can be mailed (for example, refrigerate blood obtained on Friday to be mailed on Monday)

17. Dispose of all used equipment safely. Return items to their appropriate locations.
18. Cleanse the work area and disinfect the counter according to agency policy. Remove gloves and dispose of them appropriately and wash your hands.
19. Document the procedure in the client record, including the date, type of procedure carried out, instructions given to the client and parent, their reactions, and any unusual circumstances occurring during the procedure.

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Care Coordination Actions/Case Management Guidance Standards/Medicaid Guidelines for Lead Case Management—Lead Case Management Self-Assessment Tool

All care coordination (case management) should be child and family centered. It should recognize the vital role that families play in ensuring the health and well being of children. Family centered care empowers families, fosters independence, supports family care giving, and decision-making. It also respects family choices, builds on family strengths and involves families in all aspects of the planning, delivery and evaluation of the health care services.

The following are key elements of family-centered care (Shelton et al. 1987):

- Incorporating into policy and practice the recognition that the family is the constant in a child's life, while the service systems and support personnel within those systems fluctuate.
- Facilitating family/professional collaboration at all levels of hospital, home, and community care, including care of the individual child; program development, implementation and evaluation; and policy formation.
- Exchanging complete and unbiased information between and among families and professionals in a manner that is consistently supportive.
- Incorporating into policy and practice the recognition and respect of cultural diversity, ethnic, racial, spiritual, social, economic, educational, and geographical aspects within and among families.
- Recognizing and respecting different methods of coping and implementing comprehensive policies and programs that provide developmental, educational, emotional, environmental, and financial supports to meet the needs of families.
- Encouraging and facilitating family-to-family support and networking.
- Ensuring that hospital, home and community service and support systems for children, who need specialized health and developmental care, and those children's families are flexible, accessible, and comprehensive in responding to diverse family-identified needs.
- Appreciating families as families, and children as children, recognizing that children possess a wide range of strengths, concerns, emotions, and aspirations beyond their need for specialized health and developmental services and support.

Care coordination should also consist of active coordination with the parents/caregivers, licensed environmental risk assessor, along with the medical provider, social worker, community resource individual etc. Family/child age appropriate assessments and a home investigation are initiated identifying family strengths and needs.

If chelation is indicated, coordination is essential with the medical provider and environmental provider. Home visits are of particular value if outpatient oral chelation is prescribed. It may be necessary to interpret physician's/ medical regime to family, monitor for compliance of medical regime and environmental recommendations, and assure that anticipatory guidance and parental education on primary prevention are provided.

Medicaid Criteria for Care Coordination of Elevated Blood Levels in Children

Ongoing care coordination of Medicaid children with elevated blood levels of ≥ 20 $\mu\text{g/dL}$ OR two venous results 15 or greater that are at least 3 months apart should be comprehensive in nature. A home visit is recommended for all newly identified Medicaid children with levels as noted. Child/Family case management encounters, all face to face, are mandatory per Medicaid as part of reimbursable case management. The following is from Missouri Medicaid Special Bulletin Vol. 23, No 8 Dec. 22, 2000.

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- Lead Case Management may be continued beyond the minimum of three encounters until two acceptable blood lead levels (per guidelines and/or by the attending physician) are documented
- The encounters must be at two to three month intervals, all being face-to-face
- Documentation must include validation of the blood lead level and significant interaction, and be attached to the claim.

A minimum of 3 client/family encounters, all to be face-to-face shall be mandatory. These encounters must be at 2-3 month intervals.

- Initial visit (encounter) for admission within 2 weeks of receiving confirmatory blood lead level. (Note: The higher the blood lead level the more timely the initial visit should occur.) This visit must include client/family assessment, lead poisoning education/prevention aspects inclusive of verbal and reference materials. Client is provided the care coordinator's name and telephone number.
- Follow-up visit at 3 months following initial encounter (OR sooner if case status indicates) to assess progress of affected child/family. Review and reinforce client education and medical regime.
- Exit encounter at 6 - 7 months from initial encounter to include discharge counseling (if applicable to the case) regarding lead poisoning status, ongoing nutrition efforts and environmental maintenance.

Client record - Documentation of Service

- Admission note to include blood lead level, assessment of client/family, plan of care, and any interventions, along with short/long term goals set by the by the case manager, family and other team disciplines..
- Follow-up visit (2nd visit) to include lab results, client status, any interventions by care coordinator.
- Exit or discharge contact documentation to include lab results, client status, exit counseling (to include telephone number for questions and assistance).

If a lead case manager cannot be located for the child, contact the area Bureau of Special Health Care Needs (BSHCN) office closest to the child's residence.

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Home visits enhance case management efforts and provide the opportunity to assess the EBL child/family within their environment. The lead case manager should take the opportunity to make a brief visual assessment of the home for possible lead hazards and instruct the parent/caregiver accordingly. Some examples of lead hazards include:

- Pre- 1978 homes may contain lead-based paint that is peeling, chipping, flaking—these are highly suspect.
- Bare yards or vacant lots without grass increase access to lead in soil.
- Renovation of property increases lead dust possibility.
- Vacant buildings, bridges, and other play areas may be sources of lead exposure.
- Upholstered furniture may hide lead dust.
- Pets that play in dirt and dust can be a lead source.
- Habit of eating things that fall on the floor can increase lead intake.
- Family practice of burning old, painted wood for heat can increase lead in the environment.
- Calcium supplement in the form of dolomite, bone meal, and oyster shell may contain lead.
- A toddler taking too many bottles of milk a day reduces the intake of solid foods rich in iron.
- Pipes soldered with lead are suspect.

Assessment of the EBL child/family should include the child's birth history, current health history, family health history, developmental status, nutritional assessment, social history, and child's habits and results documented. Post-assessment concerns should be discussed with the child's physician and parent/caregiver. The Nurses Lead Case Management Questionnaire (Sub-section 4.7) can assist in completing the assessments. The following assessment components are recommended:

- **Birth History** Mother's health during pregnancy
- Length of pregnancy
- Type of delivery, and delivery complications
- Medication taken during pregnancy
- Delivery in hospital or home
- Birth weight, post birth complications

Child's Health History

Has the child ever had the following:

- | | | |
|--|---|--|
| • Measles | • Intestinal parasites | • German measles |
| • Urinary problems | • Whooping cough | • GI problems |
| • Allergies | • HIV | • Mumps |
| • Scarlet fever | • Seizure | • Joint or muscle pain |
| • Rheumatic fever | • Heart disease | • Tuberculosis |
| • Anemia | • Jaundice | • EENT problems |
| • Immunization status: DPT, Polio, Hib, Hepatitis B, MMR, Varicella, Pneumococcal, (Hepatitis A and Influenza in selected populations)*per recommended schedule. | • Has the child had any other health problems within the last year? | • Has the child had any hospitalizations, operations, accidents, or injuries? (Include date and description) |

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Family Health History

Has any family member ever had the following:

- allergies
- diabetes
- birth defects
- psychiatric problems
- kidney disorders
- genetic disorders
- cardiac disease
- seizures
- mental retardation
- rheumatic fever
- hypertension
- lead poisoning

Social History

- Number of adults in the home
- Employment of caregiver(s)
- Housekeeping related to lead exposure
- Year house was built. Indicate if own or renting. Type of plumbing.
- General condition of house (stable, deterioration, undergoing repair, good condition etc.)
- Primary caregiver of the child
- Where does child spend most of his/her time (parents or? grandparents, aunts etc.)
- Ask primary caregiver if the child is extremely active, or different in any way from other children his/her age. Does the child get along with others?

Child's Habits

- Hand-to-mouth activity
- Chews on toys, crayons, newspapers, magazines, plaster, etc.
- Chews on furniture, crib, window- sills, etc.
- Chews on shirt, or security blanket
- Plays alone or with other children
- Puts fingers in mouth
- Plays near areas of chipping, flaking, or peeling paint
- Picks at paint chips, eats paint chips
- Eats dirt, grass
- Sleep habits – where does child sleep?

Nutritional Evaluation (*See Nutritional Questionnaire Subsection 4.9*)

- Number of times per day child eats
- Foods eaten
- Where foods eaten (inside, outside, table, floor, etc.)

Venous re-test intervals per DHSS/DMS guidelines should be followed. The nurse case manager should provide assistance when indicated, in coordinating necessary referrals and follow up along with documenting results of these referrals. Assess community resources available and assist the parent/caregiver in securing use of resources based upon identified needs and availability. Ongoing collaboration with the child's parent/caregiver, primary care physician, social worker, WIC staff, and other members of the health care team /referral agencies is recommended. Include when possible, the age appropriate child, parents/caregiver, health care individuals in the decision making process and the creation of the care plan. It is important for the lead case manager to ensure that all individuals involved in the care of the EBL child clearly understand the identified needs, interventions, and goals of the care plan. Maintaining consistent documentation of lead case management activities can be accomplished through use of the E 10-12 Lead Case Management Report.

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Standard II

Children with confirmed blood lead levels 20 mcg/dL or greater OR two levels 15mcg/dL or greater taken at least 3 months apart should receive care coordination through the Local Health Agency, HMO or the Child's Physician. Parents/caregivers of EBL children should receive instructions and lead poisoning educational reference materials inclusive of nutritional counseling and hygiene to improve their knowledge and care of the child within 5-7 days of receipt of the child's laboratory results. The lead case management nurse should ensure that the instruction and educational materials provided are language, comprehension, and reading level appropriate and should document understanding/application of the instruction. Instructions should also include the following precautions:

- Wash the child's hands frequently especially before eating and sleeping, after playing outside or after handling possible lead contaminated objects.
- Wash objects that children put in their mouths (toys, pacifiers, etc.)
- Encourage the child to keep hands and objects out of his/her mouth.
- Do not use standard vacuum if you have known lead dust-it can scatter the dust in the air. Use a vacuum that has a HEPA Filter
- Wet mop floors using a detergent twice a week
- Wet wash furniture and window- sills to remove lead dust

The child's primary care physician assures medical management. Children in this range should receive a home visit from the nurse case manager. The initial nursing visit should occur within 2 weeks of receipt of the confirmatory blood lead level. HOWEVER as always the higher the confirmatory level the **earlier** the initial visit should occur within the two-week period. The nurse case manager should assure that referral for environmental assessment by a licensed lead risk assessor occurs to facilitate lead hazard identification and control. The nurse case manager should use all opportunities to schedule the nursing case management home visit at the same time as the licensed lead risk assessor's visit. This facilitates collaboration and demonstrates the partnership of these disciplines in management of the EBL child along with making the visits more convenient for the parent/caregiver. Should the nursing visit occur PRIOR to the licensed lead risk assessor's scheduled visit, the nurse can take the opportunity to make a brief "visual assessment" of the child's home for possible lead hazards and initiate instruction/education. Some examples of lead hazards include:

- Pre-1978 homes may contain lead-based paint that is peeling, chipping, flaking-- these are highly suspect.
- Bare yards or vacant lots without grass increase access to lead in soil.
- Renovation of property increases lead dust possibility.
- Vacant buildings, bridges, and other play areas may be sources of lead exposure.
- Upholstered furniture may hide lead dust.
- Pets that play in dirt and dust can be a lead source.
- Habit of eating things that fall on the floor can increase lead intake.
- Family practice of burning old, painted wood for heat can increase lead in the environment.
- Calcium supplement in the form of dolomite, bone meal, and oyster shell may contain lead.
- A toddler taking too many bottles of milk a day reduces the intake of solid foods rich in iron.
- Pipes soldered with lead are suspect.

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Assessment of the EBL child/family should include the child's birth history, current health history, family health history, developmental status, nutritional assessment, social history, and child's habits and results documented. Post- assessment concerns should be discussed with the child's physician and parent/caregiver. The Nurses Lead Case Management Questionnaire (Sub-section 4.7) can assist in completing the assessment. The following assessment components are recommended:

Birth History

- Mother's health during pregnancy
- Length of pregnancy
- Type of delivery, and delivery complications
- Medication taken during pregnancy
- Delivery in hospital or home
- Birth weight, post birth complications

Child's Health History

Has the child ever had the following:

- Measles
- Urinary problems
- Allergies
- Scarlet fever
- Rheumatic fever
- Anemia
- Intestinal parasites
- Whooping cough
- HIV
- Seizure
- Heart disease
- Jaundice
- German measles
- GI problems
- Mumps
- Joint or muscle pain
- Tuberculosis
- EENT problems
- Immunization status: DPT, Polio, Hib, Hepatitis B, MMR, Varicella, Pneumococcal, (Hepatitis A and Influenza in selected populations) *per recommended schedule.
- Has the child had any other health problems within the last year?
- Has the child had any hospitalizations, operations, accidents, or injuries? (Include date and description)

Family Health History

Has any family member ever had the following:

- allergies
- diabetes
- birth defects
- psychiatric problems
- kidney disorders
- genetic disorders
- cardiac disease
- seizures
- mental retardation
- rheumatic fever
- hypertension
- lead poisoning

Social History

- Number of adults in the home
- Employment of caregiver(s)
- Housekeeping related to lead exposure
- Year house was built. Indicate if own or renting. Type of plumbing.
- General condition of house (stable, deterioration, undergoing repair, good condition etc.)
- Primary caregiver of the child
- Where does child spend most of his/her time (parents or? grandparents, aunts etc.)
- Ask primary caregiver if the child is extremely active, or different in any way from other children his/her age. Does the child get along with others?

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Child's Habits

- Hand-to-mouth activity
- Chews on toys, crayons, newspapers, magazines, plaster, etc.
- Chews on furniture, crib, window sills, etc.
- Chews on shirt, or security blanket
- Plays alone or with other children
- Puts fingers in mouth
- Plays near areas of chipping, flaking, or peeling paint
- Picks at paint chips, eats paint chips
- Eats dirt, grass
- Sleep habits - where does child sleep?

Nutritional Evaluation (*See Nutritional Questionnaire Subsection 4.9*)

- Number of times per day child eats
- Foods eaten
- Where foods eaten (inside, outside, table, floor, etc.)

The child's primary care physician assures medical management. Venous re-test intervals per current DHSS/DMS guidelines should be followed. The nurse case manager should provide assistance when indicated, in coordinating necessary referrals and follow up/document results of these referrals. Assess community resources available and assist the parent/caregiver in securing use of resources based upon identified needs and availability. Ongoing collaboration with the child's parent/caregiver, primary care physician, licensed lead risk assessor, social worker, WIC staff, and other members of the care team/referral agencies is important. Include when possible, the age-appropriate child, parents/caregiver, health care individuals in the decision making process and the creation of the care plan. It is important for the lead case manager to ensure that all individuals involved in the care of the EBL child clearly understand the identified needs, interventions, and goals of the care. Maintaining consistent documentation of lead case management activities can be accomplished through use of the E 10-12 Lead Case Management Report.

Standard III

- Children with confirmed blood lead levels 45mcg/dL or greater should receive care coordination through the Local Health Agency, HMO, or the child's Physician, Parents/caregivers of EBL children with this level should receive instructions and lead poisoning educational reference materials inclusive of nutritional counseling and hygiene to improve their knowledge and care of the child within 48 hours of receipt of the child's laboratory results.
- The lead case management nurse should ensure that the instruction and educational materials provided are language, comprehension, and reading level appropriate and should document understanding/application of the instruction. Instruction should also include the following precautions:
 - Wash the child's hands frequently especially before eating and sleeping, after playing outside or after handling possible lead contaminated objects.
 - Wash objects that children put in their mouths (toys, pacifiers, etc.)
 - Encourage the child to keep hands and objects out of his/her mouth.
 - Do not use standard vacuum if you have known lead dust-it can scatter the dust in the air. Use a vacuum that has a HEPA Filter
 - Wet mop floors using a detergent twice a week
 - Wet wash furniture and window- sills to remove lead dust
- The child's primary care physician assures medical management. The physician must assess the EBL child before beginning chelation therapy. Chelation therapy (medications given IV,IM, or PO that are capable of binding or chelating lead so as to deplete the soft and hard skeletal tissues

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of lead, excrete the ions of lead through the kidneys, and reduce acute toxicity). Chelation therapy is recommended for children with confirmed blood lead levels of 45 mcg/dL or greater.

All children in this category who are receiving chelation therapy must be in a lead free environment both during and after the chelation. Children should be treated with the appropriate chelating agents and not returned to an environment where lead hazard exposure may continue until the hazard(s) are controlled.

- Children in this range should receive lead case management, medical management, environmental risk assessment, within 48 hours of receipt of the child's laboratory results. Lead hazard control should occur in a very timely manner. The nurse case manager should use all opportunities to schedule the nursing case management home visit at the same time as the licensed lead risk assessor's visit. This facilitates collaboration and demonstrates the partnership of these disciplines in management if the EBL child along with making the visits more convenient for the parent/caregiver. Should the nursing visit occur PRIOR to the licensed lead risk assessors scheduled visit, the nurse can take an opportunity to make a brief "visual assessment" of the child's home for possible lead hazards and initiate instruction/education. Some examples of lead hazards include:
 - Pre-1978 homes may contain lead-based paint that is peeling, chipping, flaking-- these are highly suspect.
 - Bare yards or vacant lots without grass increase access to lead in soil.
 - Renovation of property increases lead dust possibility.
 - Vacant buildings, bridges, and other play areas may be sources of lead exposure.
 - Upholstered furniture may hide lead dust.
 - Pets that play in dirt and dust can be a lead source.
 - Habit of eating things that fall on the floor can increase lead intake.
 - Family practice of burning old, painted wood for heat can increase lead in the environment.
 - Calcium supplement in the form of dolomite, bone meal, and oyster shell may contain lead.
 - A toddler taking too many bottles of milk a day reduces the intake of solid foods rich in iron.
 - Pipes soldered with lead are suspect.
- Assessment of the EBL child/family should include the child's birth history, current health history, family health history, developmental status, nutritional status, social history, child's habits, and results documented. Post assessment concerns should be discussed with the child's physician and parent/caregiver. The Nurse Lead Case Management Questionnaire (Sub-section 4.7) can assist in completing the assessment. The following assessment components are recommended:

Birth History

- | | |
|--|--|
| • Mother's health during pregnancy | • Medication taken during pregnancy |
| • Length of pregnancy | • Delivery in hospital or home |
| • Type of delivery, and delivery complications | • Birth weight, post birth complications |

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Child's Health History

Has the child ever had the following:

- Measles
- Urinary problems
- Allergies
- Scarlet fever
- Rheumatic fever
- Anemia
- Intestinal parasites
- Whooping cough
- HIV
- Seizure
- Heart disease
- Jaundice
- German measles
- GI problems
- Mumps
- Joint or muscle pain
- Tuberculosis
- EENT problems
- Immunization status: DPT, Polio, Hib, Hepatitis B, MMR, Varicella, Pneumococcal, (Hepatitis A and Influenza in selected populations)*per recommended schedule.
- Has the child had any other health problems within the last year?
- Has the child had any hospitalizations, operations, accidents, or injuries? (Include date and description)

Family Health History

Has any family member ever had the following:

- Allergies
- diabetes
- birth defects
- psychiatric problems
- kidney disorders
- genetic disorders
- cardiac disease
- seizures
- mental retardation
- rheumatic fever
- hypertension
- lead poisoning

Social History

- Number of adults in the home
- Employment of caregiver(s)
- Housekeeping related to lead exposure
- Year house was built. Indicate if own or renting. Type of plumbing.
- General condition of house (stable, deterioration, undergoing repair, good condition etc.)
- Primary caregiver of the child
- Where does child spend most of his/her time (parents or? grandparents, aunts etc.)
- Ask primary caregiver if the child is extremely active, or different in any way from other children his/her age. Does the child get along with others?

Child's Habits

- Hand-to-mouth activity
- Chews on toys, crayons, newspapers, magazines, plaster, etc.
- Chews on furniture, crib, window sills, etc.
- Chews on shirt, or security blanket
- Plays alone or with other children
- Puts fingers in mouth
- Plays near areas of chipping, flaking, or
- Peeling paint
- Picks at paint chips, eats paint chips
- Eats dirt, grass
- Sleep habits – where does child sleep?

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Nutritional Evaluation (*See Nutritional Questionnaire Subsection 4.9*)

- Number of times per day child eats
- Foods eaten
- Where foods eaten (inside, outside, table, floor, etc.)

The child's primary care physician assures medical management. Venous re-test intervals per current DHSS/DMS guidelines should be followed. Provide assistance when indicated, in coordinating necessary referrals and follow up/document results of these referrals. Assess community resources available and assist the parent/caregiver in securing use of resources based upon identified needs and availability. Ongoing collaboration with the child's parent/caregiver, primary care physician, licensed lead risk assessor, social worker, WIC staff, and other members of the care team/referral agencies is important. Include when possible, the age-appropriate child, parents/caregiver, health care individuals in the decision making process and the creation of the care plan. It is important for the lead case manager to ensure that all individuals involved in the care of the EBL child clearly understand the identified needs, interventions, and goals of the care plan both during and after chelation therapy. Maintaining consistent documentation of lead case management activities can be accomplished through use of the E 10-12 Lead Case Management Report.

Ongoing collaboration with the child's parent/caregiver, primary care physician, hospital in-patient and out-patient staff, licensed lead risk assessor, social worker, WIC staff, and other members of the health care team or referral agencies is critical both during and after chelation therapy. Discharge planning remains a significant component of care coordination at this level. .

Standard IV

According to CDC recommendations Chelation therapy should be initiated immediately for all children with an initial screening test result that is greater than or equal to 70 mcg/dL. The EBL child must be hospitalized and medical treatment initiated. If such an elevated BLL is obtained on a fingerstick sample, the health care provider should order an immediate diagnostic test (venous blood sample) and consider initiating chelation while that test is being performed ***if there is reason to believe that the results of the screening test are accurate. (e.g., if it was obtained by a skilled phlebotomist under controlled conditions- CDC November 1997-Screening Young Children for Lead Poisoning)***

Coordination of care (case management), medical management, licensed lead risk assessment and lead hazard control should occur as a "team" effort through the Hospital, Local Health Agency, HMO, and Primary Care Physician. For the nurse lead case manager, completion of parent/caregiver instruction/education, and necessary health assessments related to lead poisoning may depend upon the timing/urgency of admission to the hospital. As indicated parent/caregiver instruction and educational reference materials related to lead poisoning inclusive of ongoing nutritional counseling and hygiene should be provided as a collaborative effort with hospital staff during the child's hospitalization. Assess remaining knowledge deficits and assessment needs post hospital stay and instruct and complete remaining assessments accordingly. Education and reference materials provided should be language, comprehension and reading level appropriate for the parent/caregiver and documentation of understanding/application of education should occur. Instruction should also include the following precautions:

- Wash the child's hands frequently especially before eating and sleeping, after playing outside or after handling possible lead contaminated objects.
- Wash objects that children put in their mouths (toys, pacifiers, etc.)

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- Encourage the child to keep hands and objects out of his/her mouth.
- Do not use standard vacuum if you have known lead dust-it can scatter the dust in the air. Use a vacuum that has a HEPA Filter
- Wet mop floors using a detergent twice a week
- Wet wash furniture and window- sills to remove lead dust
- Assessment of the EBL child/family should include the child's birth history, current health history, family health history, developmental status, nutritional status, social history, child's habits, and results documented. Post assessment concerns should be discussed with the child's physician and parent/caregiver. The Nurse Lead Case Management Questionnaire (Sub-section 4.7) can assist in completing the assessment . The following assessment components are recommended:

Birth History

- Mother's health during pregnancy
- Length of pregnancy
- Type of delivery, and delivery complications
- Medication taken during pregnancy
- Delivery in hospital or home
- Birth weight, post birth complications

Child's Health History

Has the child ever had the following:

- | | | |
|--|---|--|
| • Measles | • Intestinal parasites | • German measles |
| • Urinary problems | • Whooping cough | • GI problems |
| • Allergies | • HIV | • Mumps |
| • Scarlet fever | • Seizure | • Joint or muscle pain |
| • Rheumatic fever | • Heart disease | • Tuberculosis |
| • Anemia | • Jaundice | • EENT problems |
| • Urinary problems | • Whooping cough | • GI problems |
| • Allergies | • HIV | • Mumps |
| • Scarlet fever | • Seizure | • Joint or muscle pain |
| • Rheumatic fever | • Heart disease | • Tuberculosis |
| • Anemia | • Jaundice | • EENT problems |
| • Immunization status: DPT, Polio, Hib, Hepatitis B, MMR, Varicella, Pneumococcal, (Hepatitis A and Influenza in selected populations)*per recommended schedule. | • Has the child had any other health problems within the last year? | • Has the child had any hospitalizations, operations, accidents, or injuries? (Include date and description) |

Family Health History

Has any family member ever had the following:

- | | |
|------------------------|----------------------|
| • Allergies | • cardiac disease |
| • diabetes | • seizures |
| • birth defects | • mental retardation |
| • psychiatric problems | • rheumatic fever |
| • kidney disorders | • hypertension |
| • genetic disorders | • lead poisoning |

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Social History

- Number of adults in the home
- Employment of caregiver(s)
- Housekeeping related to lead exposure
- Year house was built. Indicate if own or renting. Type of plumbing.
- General condition of house (stable, deterioration, undergoing repair, good condition etc.)
- Primary caregiver of the child
- Where does child spend most of his/her time (parents or? grandparents, aunts etc.)
- Ask primary caregiver if the child is extremely active, or different in any way from other children his/her age. Does the child get along with others?

Child's Habits

- Hand-to-mouth activity
- Chews on toys, crayons, newspapers,
- Magazines, plaster, etc.
- Chews on furniture, crib, window sills, etc.
- Chews on shirt, or security blanket
- Plays alone or with other children
- Puts fingers in mouth
- Plays near areas of chipping, flaking, or
- Peeling paint
- Picks at paint chips, eats paint chips
- Eats dirt, grass
- Sleep habits – where does child sleep?

Nutritional Evaluation (*See Nutritional Questionnaire Subsection 4.9*)

- Number of times per day child eats
- Foods eaten
- Where foods eaten (inside, outside, table, floor, etc.)

The nurse case manager should maintain close collaboration with hospital staff, parents/caregiver, age-appropriate child, licensed lead risk assessor, social worker, community resources, etc. both during and after hospitalization for chelation therapy. to provide assistance with completion of assessments and supportive care regarding care of the EBL child/family. When the nursing home visit occurs the nurse case manager should collaborate closely with the licensed lead risk assessor to become aware of identified lead hazards and recommendations to eliminate known hazards. The nurse case manager should utilize opportunities to re-enforce the lead hazard control recommendations of the licensed lead risk assessor. Should additional parent/caregiver lead hazard instruction/education be needed during nurse case manager visits the following are examples of possible lead hazards

- Pre-1978 homes may contain lead-based paint that is peeling, chipping, flaking-- these are highly suspect.
- Bare yards or vacant lots without grass increase access to lead in soil.
- Renovation of property increases lead dust possibility.
- Vacant buildings, bridges, and other play areas may be sources of lead exposure.
- Upholstered furniture may hide lead dust.
- Pets that play in dirt and dust can be a lead source.
- Habit of eating things that fall on the floor can increase lead intake.
- Family practice of burning old, painted wood for heat can increase lead in the environment.
- Calcium supplement in the form of dolomite, bone meal, and oyster shell may contain lead.
- A toddler taking too many bottles of milk a day reduces the intake of solid foods rich in iron.
- Pipes soldered with lead are suspect.

Discharge planning remains a significant component of care coordination in this phase along with assisting the child/family to secure alternative housing (if indicated) and other needed community

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resources. It is important that all individuals involved in the care of the child clearly understand the identified needs, interventions, and goals of both the hospitalization and post-hospitalization care plans. Maintaining consistent documentation of lead case management activities can be accomplished through use of the E 10-12 Lead Case Management Report.

Standard V

For lead case management cases the lead case manager will provide the child's primary care physician with both verbal and written information which includes details of the child's current status, case management activities such as results of assessments, planned interventions, progress towards goals and non-compliance issues. A written summary report should be provided to the physician on a monthly or quarterly basis (more frequently if the child's status warrants or the child's physician requests, OR at a alternate frequency agreed upon by both the physician and lead case management nurse..

Standard VI

The nurse case manager will assess the child's home for other hazards and discuss concerns with the parents/caregiver. Include the child's primary care physician in discussions as indicated.

Standard VII

The lead case manager will assess lead case management cases for possible closure depending upon the status of the case. (See Case Closure Requirements/Reasons)

For lead case managers it remains important to remember that there are differences between closing a case in the Stellar Database OR closing a case under Medicaid or MDHSS guidelines where the child continues to have an elevated blood lead level (ie: 10mcg/dL or greater). The lead case manager should clearly understand that WHATEVER THE REASON THE EBL CHILD MUST BE REFERRED OR TRANSFERRED to the care of the primary care physician, Managed Care HMO, etc. for all remaining follow up until the child's blood lead level falls below 10mcg/dL. Such referral should occur by both phone contact and letter. The child's parent/caregiver should also receive notification that the case is being referred to the child's physician for all remaining follow up. This notification process will assist in promoting continuity of follow-up of the child's elevated lead level through a clinical entity. Documentation of all referrals and notification letters becomes a part of the child's lead case management record.

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CHILD CASE REFERRAL TRANSFER AND CLOSURE REASONS

PURPOSE:

- To facilitate and assure timely tracking, follow-up, and referral occurs for children with elevated blood lead levels (BLLs).
- To maintain an accurate, up-to-date listing of open cases of children with elevated blood lead levels that are actively receiving follow-up.
- To accurately evaluate caseloads and their activity.
- To assure that those children's cases that are being closed for any reason * whereby the child continues to have an elevated blood lead level receive timely referral to the child's primary care physician for all remaining follow-up until the child's lead level falls below 10µg/dL.

The nurse case manager may consider closing the child's case when the following occurs:

REQUIREMENTS FOR CLOSURE OF CHILD CASES

Purpose

- To facilitate and assure timely tracking, follow-up, and referral occurs for children with elevated blood lead levels. (BLLs)
- To maintain an accurate, up-to-date listing of open cases of children with elevated blood lead levels that are actively receiving follow-up.
- To accurately evaluate caseloads and their activity.
- To assure that those children's cases that are being closed for any reason whereby the child continues to have an elevated blood lead level receive timely referral to the child's primary care physician for all remaining follow-up until the child's blood lead level falls below 10 ug/dl.

The nurse case manager should review cases for possible closure from a point of view of services provided and consider closing the child's case according to the occurrences in the following table.

REASONS FOR CASE CLOSURE	
Current blood lead level (BLL) less than 10ug/dl	
Blood lead level remains less than 15ug/dl for at least 6 months.	<ul style="list-style-type: none"> • The blood lead level remains less than 15ug/dl for at least six (6) months. • Lead hazards have been removed. • There are no new exposures. <p><i>Note:</i> Depending upon the agency's resources and the case manager's discretion, such cases may remain open and continue to be followed by the case manager until the child's blood lead level falls below 10ug/dl.</p>
Blood lead level remains below 20ug/dl for 1 year.	This closure reason is intended for use in cases where all efforts to reduce a child's BLL have been made (i.e. hazards in the home environment have been reduced, personal hygiene, nutritional and housekeeping behaviors have been appropriately modified, etc.), yet the child's body burden of lead causes his/her BLL to consistently remain between 15-20Ug/dl.

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Refusal of service	Case Management is offered to the child's family but is refused.
Older than 72 months	<p>The child's age is greater than 72 months of age. The Missouri Department of Health and Senior Services does not follow lead poisoned children beyond 72 months of age.</p> <p><i>See note at end of table regarding handling notification to medical provider.</i></p>
Moved out of area/state	<p>If the family provides advance notification that they are moving out of the area, the agency should:</p> <ul style="list-style-type: none"> • Provide the family with referral information from the case file to take with them to the new state for follow-up as needed. • Send referral information from the case file to the new state or local CLPPP. <p>Note: <i>If the family does not provide notification regarding the move, CHECK WITH OTHER PROVIDERS (Physicians, WIC DFR, or other provider types) for possible information regarding the new state the family has moved to. Phone contact with the child's new state should occur and referral information forwarded to the child's new State's Department of Health Childhood Lead Program. If a blood lead lab result is reported to the child's new state it may then be possible to determine the child's new address, county of residence and local health agency for ongoing follow-up.</i></p>
Unable to locate	<p>At least three differing kinds of attempts should be made to contact the family before this closure reason is used. Examples of contact attempts may include:</p> <ul style="list-style-type: none"> • Phone call attempts before, during and after regular working hours. • Site visits to the family's home. • Send letter with an address correction request. • Check with doctor, DFS, WIC, and other provider types.

Note: *Keep in mind, that all opportunities where case closure is occurring, the nurse case manager should provide verbal and written notification to the child's physician, parent/caregiver and other disciplines involved in the care of the child to assure that all understand the nurse will no longer be following the child.*

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DIAGRAM #5

LEAD CASE MANAGEMENT SELF ASSESSMENT TOOL

THE CASE MANAGER/CARE COORDINATOR:

- Yes _____ No _____ Has performed assessment of the child's current medical status, play habits, family status and identified both child and family needs, by either home visit or face to face office visit.
- Yes _____ No _____ Has determined through "visual environmental assessment" the possible sources of lead exposure present within the child's environment, and discussed these possibilities with the parent/caregiver.
- Yes _____ No _____ Has assessed the nutritional status of the child and the parent/caregiver's knowledge concerning adequate nutrition.
- Yes _____ No _____ Has utilized results of the nutritional assessment to provide nutritional counseling and other appropriate referral as indicated.
(i.e.: Nutritionist, WIC)
- Yes _____ No _____ Has assessed the support system and community resources available for the parent/caregiver/child and made appropriate referrals as indicated.
- Yes _____ No _____ Has initiated notification of licensed environmental staff to perform environmental investigation of the child's residence, if applicable.
(i.e., venous $\geq 20\mu\text{g/dL}$ or two 15-19 venous levels 3 months apart.)
- Yes _____ No _____ Has incorporated the results of the assessments and unmet needs into design of the plan of care.
- Yes _____ No _____ Has made appropriate referrals as indicated.
- Yes _____ No _____ Has performed necessary follow-up for all referrals.
- Yes _____ No _____ Has involved the parent/caregiver, age appropriate child, and other disciplines (physician, licensed lead inspector, social worker, managed care staff, etc.) in creation of the plan of care and the decision making process
- Yes _____ No _____ Has provided both initial and ongoing verbal and written lead poisoning prevention education to the parent/caregiver or age appropriate child in a clear, easily understood manner.

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- Yes ____ No ____ Has assessed the parent/caregivers/age appropriate child's understanding of the education and was able to evidence a change in the knowledge base of these individuals and utilization of the education within the child's environment.
- Yes ____ No ____ Has documentation that evidences non-utilization of recommended interventions to reduce lead hazards or access to lead hazards, and possible reasons why.
- Yes ____ No ____ Has documented collaboration with the parent/caregiver, child, physician, hospital staff and other related disciplines.
- Yes ____ No ____ Has documented modification of the care plan and goals based upon changes in treatment or progress.
- Yes ____ No ____ Has provided the child's physician with a written summary of case management activities inclusive of assessment results, blood lead level results, planned interventions, and progress towards goals, at a frequency agreed upon by the nurse and physician..
- Yes ____ No ____ Has performed case closure based upon DHSS or DS case closure policies.

OR

- Yes ____ No ____ Has chosen to continue to case manage the child until the child's lead level is less than 10 µg/kL. (If response in NO, then the child's physician should be advised that lead case management is being discontinued.)

NOTE: *For those components checked "NO" it is recommended that the component be performed to maximize care coordination efforts and outcomes, unless non-applicable.*

ANTICIPATED OUTCOMES

As a result of care coordination efforts, the family will have an improved knowledge base, re: lead poisoning and will carry out practices that will minimize lead hazards. The child will have decreased blood lead levels and will demonstrate adequate growth and development.

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 $V = V_{\text{venous}}$

BLOOD LEAD LEVELS

[illegible]

NOTES

[illegible]

Date _____

DISTRIBUTION: WHITE DATA ENTRY UNIT CO. MCH YELLOW - CLIENT SITE PINK - OHH-1

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**Instructions for Obtaining Case Management Information and
Completing the Lead Poisoning Case Management Report**

GENERAL INFORMATION

1. The child's case management provider should be contacted within 15 days of notification of an elevated blood lead level.
2. During contact with the provider, verification should be sought that the provider is cognizant of the recommended Missouri Lead Manual guidelines regarding case management activities and follow-up testing (timeframes, sample types, etc.). Inquiries to encourage appropriate case management activities and follow-up testing intentions and/or scheduling should also be made.
3. The Lead Poisoning Case Management Report is to be submitted within 10 days of receipt of information.

Case Management Information Section (required):

1. Determine whether case management services have been made available to the client. It is important to realize that case management definitions and its activities/services may vary greatly between providers. Therefore the utilization of different terminology, e.g., service coordination, follow-up care, continuing care, active medical supervision and intervention, etc., are all acceptable positive responses for "Was case management offered to client".
2. Complete the date case management was offered.
3. Check whether case management was "Accepted" or "Refused" by the client.
4. Complete the date case management was accepted or refused by the client.
5. Circle the appropriate case management agency type code.

Chelation Information Section (required, if applicable):

1. Check "Yes" or "No" for "Is chelation being done".
2. As applicable, complete the date chelation therapy began.
3. As applicable, complete the date chelation therapy ended.
4. As applicable, check the type of chelation medication used.

Additional Information Section (optional):

This lower portion of the form may be completed if additional client information is required/wanted for the agency. It is not required for submission.

SIX AND TWELVE MONTH FOLLOW-UP AND REPORTING

If, at each six month anniversary of the date case management began, individual case review indicates:

- a) no further testing has occurred; or
- b) no positive change in the child's blood level has been realized; or
- c) no additional information has been obtained indicating active case management continuance,

the provider should be re-contacted to assure that case management is still occurring. The provider's response should be recorded as appropriate according to the following:

Follow-Up Section:

1. Check whether the information is regarding the six month or twelve month follow-up.
2. If case management is:
 - a) Continuing, enter the date the provider was contacted.
 - b) Ending, complete the Case Management Ending Section.

Case Management Ending Section:

1. Complete the date case management ended as indicated by the provider.
2. Check the reason case management ended as indicated by the provider.

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Exhibit A

District _____
County _____
City _____
Questionnaire Date ____/____/____

Missouri Department of Health and Senior Services
Childhood Lead Poisoning Prevention Program
Nurse's Lead Case Management Questionnaire
(Base Questions on Past 90 Days Activities)

1. Child's Name _____

Last
First
Middle
2. Name of Parent/Guardian: _____
Medicaid # _____ Insurance # _____ MC+ Health Plan _____
3. Current Address: _____

Street
City
Zip Code
4. How long at this address? _____ Phone Number (____) _____ - _____
5. Previous Address: _____
6. How long at this address? _____
7. Child's Date of Birth ____/____/____
8. Blood Lead Level _____ µg/dL Date sample obtained ____/____/____
9. Gender: Male Female
10. Child's Race: White Black Asian or Pacific Islander Native American. Child's Ethnicity: Hispanic
Non-Hispanic Unknown.
11. Are there any pregnant women in this household? Yes No
12. How many other children in the household?

Name	Date of Birth	Lead Level	When Tested
_____	____/____/____	_____ µg/dL	____/____/____
_____	____/____/____	_____ µg/dL	____/____/____
_____	____/____/____	_____ µg/dL	____/____/____
_____	____/____/____	_____ µg/dL	____/____/____
13. Was your home/apartment built? Before 1950 1950-1979 1980 or After
14. Do you: Own your home Rent your home/apartment
15. If renting, please give name and address of owner:
Name _____
Address _____
Phone No. (____) _____ - _____

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14. Where does your child spend most of his/her time when **away** from home?

Day Care Home Child Care Center Head Start Preschool Relative/Friend School

Amount of time at location from #15 (hours per day) _____

15. The name and address (if applicable) of your choice in #15 above

Name _____

Address _____

16. Does your child have any of the following symptoms?

	Yes	No		Yes	No
Restlessness			Diarrhea		
Severe Restlessness			Constipation		
Restless Sleep			Vomiting		
Difficulty Going to Sleep			Stomachache		
Joint Pain			Appetite Loss		
Concentration Difficulty			Weight Loss		
Unusual Behavior					
Headache					
Paralysis					
Irritability					
Weakness					
Tiredness					
Dizziness					
Fainting					
Staggering Gait					
Clumsiness					
Convulsions					
Blindness					

17. Have you consulted your family physician regarding any of these symptoms? Yes No

18. The Name, Address, and Phone Number of your family physician.

Name _____ Address _____ Phone _____

Pica Tendencies:

19. Does your child chew/suck on any of the following non-food substances? (check all that apply)

	Yes	No		Yes	No
Hands/Feet			Railings		
Thumb/Finger			Moldings		
Pacifiers			Magazines		
Toys/Blankets			Newspapers		
Furniture			Dirt/Clay		
Windowsills			Chalk		
Doors			Glue		
Paint Chips			Imported Crayons		
Metal Based			Other-		

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Eating Habits

- | | Yes | No |
|---|-------|-------|
| 20. Is food stored in original cans, ceramic ware, pottery or pewter? | _____ | _____ |
| 21. Is food eaten from cans, ceramic ware, pottery or pewter? | _____ | _____ |
| 22. Does your child take a bottle? | _____ | _____ |
| 23. If so, what and how often _____ | | |
| 24. Does your child take a vitamin supplement? | _____ | _____ |
| 25. Do you use hot tap water for cooking/drinking or formula making? | _____ | _____ |
| 26. Do you use traditional/folk remedies? | _____ | _____ |

(Examples: Asian-Chuifong Tokuwan, pay-loo-ah, ghassard, bali,goli, and kandu.

Mexican-azarcon and greta also known as liga, Maria Luisa, alarcon, coral and rueda. Middle Eastern-alkohol, khol, surma, saoott, cebagin.)

Interior Environment

27. Has the home/apt been remodeled in the last two years? Yes No
28. If yes, describe the extent of remodeling: _____
29. In what rooms of the house does your child spend the most time?
- Nursery Bedroom Playroom Family Room Kitchen Living Room
- Dining Room Other (specify) _____
30. Where does he/she play when playing outside? (list type of surfaces; grassy, asphalt etc)
- Playground _____ Park _____
- Front Yard _____ Back Yard _____
- Neighbors Yard _____ Other (specify) _____
31. Does he/she put dirt, rocks, plants, etc., in his/her mouth? Yes No
32. Does he/she play with non-toys, i.e. pieces of pipe, etc.? Yes No Explain _____

General Home/Apartment Information

33. Any plumbing work done on the home in the last year? Yes No
34. What type of plumbing is in the home?
- Plastic (PVC) Galvanized Copper Lead Mixture Unknown
35. Is your home located in or near an industrial area or toxic waste site? (include both former and/or current industrial operations) Yes No Don't Know
36. Is your home/apartment located near a bridge, water tower or other steel structure? Yes No
37. Is your home located near a heavily traveled street/highway? Yes No
38. Has the use of the adjacent roads changed significantly? (e.g. bypass built which lessened traffic on a street) Yes No
39. What are the occupations of the members of the household?
- _____

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40. List household members hobbies (relevant to lead exposure)

These next two questions are to be based upon a reasonable estimate of the Nurse CASE Manager

41. How would you judge the housekeeping practices of the family? Good Moderate Poor

42. Comments: _____

43. What is the overall condition of the home? Good Moderate Fair Poor

Comments: _____

Person(s) Interviewed:

Relationship

Questionnaire Completed By: (Please Print) _____

Comments/Notes: _____

Signature: _____

Public Health Nursing, Nutrition, Hygiene and Medical Management
Anticipatory Guidance

Anticipatory guidance should be provided to all families regardless of blood lead levels. Anticipatory guidance helps prevent lead poisoning by educating families on ways to prevent lead exposure. This includes information to promote safe environmental and occupational practices, the risk of normal childhood hand-to-hand activity, likely sources of lead, and instruction in general measures of nutrition and hygiene for preventing lead exposure. Anticipatory guidance should be tailored to important sources and pathways of lead exposure. The following are suggested topics for anticipatory guidance. Remember, children are more at risk than adults.

What does lead do to children?

- Lead affects all body systems, but especially brain and nervous system of fetuses and children.
- Lower IQ's and decreased cognition with low blood lead levels.
- Reading disability, along with deficits in vocabulary.
- Short attention spans.
- Disturbed fine motor coordination.

Where is lead? Lead is everywhere, but particularly in:

- Lead-based paint
- Soil and dust
- Drinking water (if lead plumbing, or kept in lead containers)
- Air
- Some occupations and hobbies
- Food
- Some folk medicines such as **Azarcon, Greta, Liga, Maria Luisa, Pay-loo-ah, Alkohl, Chuifong tokuwan etc.
- Some cosmetics such as Surma and Kohl used around the eye for either decorative or medicinal purposes

Home Visits

Home visits help to provide a method by which the nurse case manager can assess the child, and the child's all important environment. The nurse can use this opportunity to further educational efforts, interface directly with the parent/caregiver/child and other family members and to help promote the concept of prevention and family health in general.

Precautions to take:

- Wash child's hands frequently, but especially before eating, after playing outside or after handling possible lead contaminated objects, and before sleeping.
- Wash objects that children put in their mouths (toys, pacifiers etc.)
- Encourage child to keep hands and objects out of his/her mouth.
- Do not use a standard vacuum if you have known lead dust - it can scatter dust in the air. Use a vacuum that has a HEPA Filter.
- Wet mop floors using a detergent twice a week.
- Wet wash furniture and windowsills to remove lead dust.

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Subsection 4.9 Nutrition and Hygiene Measures for Preventing Lead Exposure and Absorption	Revised

Nutrition and Hygiene Measures for Preventing Lead Exposure and Absorption

The following information will assist the health care provider in providing nutritional guidance to parents/caregiver.

The child's risk to lead exposure can be reduced by:

- preparing foods safely.
- making good food choices. (i.e. high iron, calcium, vitamin C food and foods low in fat.)
- adequate frequency of food intake.

Good nutrition can have a preventative effect in helping to reduce the possibility of lead poisoning. The food that the client eats, including the overall patterns of food consumption and frequency of food intake can influence the absorption of lead from the gastrointestinal tract. Preventive measures should be consistent with the general recommendations for nutrition in health promotion. The dietary intake should be adequate in iron and calcium, as they are the two main minerals identified to reduce the absorption of lead. Children can avoid lead poisoning to a degree if they eat a diet high in iron and calcium. This reduces lead absorption.

The Special Supplemental Nutrition Program for Women, Infants and Children (WIC) located in the DHSS Division of Nutritional Health and Services (DNHS), focuses on nutritional related issues for eligible clients. The WIC Program has the same standards for participation regardless of race, color, national origin, sex, age or disability. Information about the WIC Program, can be access from the DNHS web page [www.dhss.state.mo.us/Missouri Nutrition](http://www.dhss.state.mo.us/Missouri%20Nutrition) or call 1-800-392-8209 or the Missouri Department of Health and Senior Services, P.O. Box 570, Jefferson City MO 65102.

Food Safety

- Caregiver should wash their hands before fixing foods or pumping breast milk or preparing formula.
- Child should wash hands before eating.
- Run cold tap water 30 seconds before using.
- Use **cold** tap water for drinking, cooking or mixing formula, not hot.
- Store left over food or juices in glass, plastic, stoneware without decal-type decorations, porcelain or stainless steel — not in cans or poorly glazed ceramic ware.
- Check antique dishes or family heirlooms to see if they leach lead; if in doubt, use only for decorative purposes.
- Avoid imported canned foods.
- Do not use dishes or pottery from other countries unless you know it is lead free.
- Use lead-free or certified low-lead china.
- Do not store food, formula, or juice in lead crystal dishes.
- Do not use lead soldered pots, pans or cooking utensils.
- Do not eat garden foods planted in area of heavy air pollution.
- Teach your child to keep **all** nonfood items out of their mouth.
- Wash off **all** bottles, pacifiers and food that drop on the floor before giving them back to your infant.
- Do not use supplements that contain animal bone or dolomite.

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Subsection 4.9 Nutrition and Hygiene Measures for Preventing Lead Exposure and Absorption	Revised

Making Good Food Choices

The food that the child eats—the overall patterns of food consumption and frequency of food intake—can influence the absorption of lead since the gastrointestinal tract is a primary absorption site. Preventive measures should be consistent with the general recommendations for nutrition in health promotion. (See Food Pyramid Section 4.9 page 6) The dietary intake should be adequate in iron and calcium, as they are the two main minerals identified to reduce the absorption of lead. A child who is diagnosed with iron deficiency anemia will absorb more lead than a child with adequate iron storage.

An empty stomach absorbs more lead; therefore, it is imperative that the child eats more frequently 5-6 times a day. It is better to offer the child three moderate meals with snacks in between than three large meals.

The healthcare professional may wish to use the Nutritional Questionnaire and Food Frequency Form on the following pages to evaluate the child's intake.

Foods that are high in iron or are a good source of iron:

- liver, beef, chicken, turkey, fish or pork
- chili with or without beans
- braunschweiger
- egg yolks
- main dishes made with lean red meats
- lentils, chickpeas, pinto beans, navy beans, cowpeas, black-eyed peas, great northern beans, black beans, baked beans, soybeans, kidney beans, red beans, lima beans
- cooked cereals such as: Cream of Wheat®, Malt-O-Meal®, Maypo®, oatmeal
- any iron-fortified ready-to-eat cereals with added fortification such as: Raisin Bran®, Shredded Wheat®, Corn Flakes®, Cheerios®, Total®, etc.
- enriched breads and grain products, bagels, bran muffins, cooked white or brown rice
- dried fruits (raisins, dates, figs, prunes) peaches apricots, banana, apple, orange
- spinach, greens, Swiss chard broccoli, peas, baked potato w/skin

Tea or tannin-containing beverages interfere with the absorption of iron. Excess consumption of soda or phosphorus beverages interferes with iron absorption. Limit soda consumption. Do not drink tea with meals or snacks. Iron from animal sources (heme iron) is absorbed best. To enhance the absorption of non-heme iron (iron from plant foods), a good source of vitamin C in combination with that food is needed.

Foods that are a good source of vitamin C:

- oranges, grapefruit, tangerines, strawberries, cantaloupe
- juices - orange, grapefruit, pineapple, or other vitamin C enriched juices
- tomatoes, bell peppers, greens, kale, broccoli

Foods high in calcium or are a good source of calcium:

- low fat milk and yogurt
- low fat cheese, cottage cheese and cream cheese
- ice milk or frozen yogurt
- foods made with low fat milk such as pudding, custard, cream soup
- greens, spinach, rhubarb
- navy beans, great northern and baked beans
- calcium fortified orange juice

Limit Fats and Oils

Foods high in fats and oils make it easier for the body to absorb lead. Removing skins from chicken and trimming fat from meats will also help. Try to limit these foods in your child's diet:

- butter
- bacon
- potato chips
- oil
- sausage
- fried Foods
- lard
- french Fries

Ideas for snacks

- dry cereals
- finger sandwiches made with lean meats
- cheese and crackers
- fresh or canned fruit with low fat cottage cheese
- juice
- serve snacks with milk or vitamin- C rich
- sherbet
- bread Sticks
- cereal with milk
- yogurt (low or non-fat)
- whole wheat toast
- English muffin
- graham crackers

Snacks for children over two

- peanut butter
- raw vegetables
- raisins
- string cheese

Nutritional Referral:

- ☐ Local Public Health Agencies;
- Local WIC agencies
- ☐ Local hospital dietitian

Dietitians in private practice - check yellow pages for listing in your area or call American Dietetic Association at 1-800-877-1600 for registry of dietitians in private practice in your area. (Non-reimbursable Medicaid expense)

DHSS/DNHS web page [www.dhss.state.mo.us/Missouri Nutrition](http://www.dhss.state.mo.us/Missouri%20Nutrition) .

Community food sources

Food Stamps
Child and adult care food program (daycare)
Community food banks
Commodity supplemental food program
School lunch
School breakfast.
Summer food service program

Nutrition-related lead materials:

LEAD: Living with the Enemy MDHSS Preventing Lead Poisoning: Food Safety & Good Nutrition, MDHSS (new)

Babies Need Iron, MDHSS

Children Need Iron, MDHSS

Anemic? MDHSS (being updated)

Key Nutrients - Iron, MDHSS

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Materials offering a variety of foods from the basic food groups:

Foods for Young Children - A Guide for feeding the one to six year old,

Nutrition Resources

Key Nutrients and the Basic Food Groups, MDHSS

Feeding Your Baby: Birth to 4 Months, MDHSS

Feeding Your Baby: 4 - 6 Months, MDHSS

Feeding Your Baby: 6 - 12 Months, MDHSS

(Feeding Your Baby series replaces the Foods to Grow On - Birth to 12 Months)

Go Glow Grow – Foods for You, MDHSS

Building Good Food Habits for Kids 1-6, MDHSS

Preventing Lead Poisoning – Food Safety and Good Nutrition, MDHSS

See Food Guide Pyramid-Diagram #7

Nutritional Questionnaire

Please answer the following questions:

1. How many times a day does your child eat? Meals _____ Snacks _____

2. How many times a week does your child eat away from home?

☐ ___ times/week ☐ Weekend only ☐ Never

3. Does your child take vitamin or mineral supplements? ☐ Yes ☐ No

If yes, what type? _____

how often? _____

4. How is the meal usually prepared?

☐ Baked ☐ Steamed ☐ Fried ☐ Broiled ☐ Other

5. Does your child eat anything that is not considered to be food on a routine basis?

☐ Yes ☐ No If yes, check all that apply:

☐ Clay or dirt ☐ Paint chips ☐ Corn or laundry starch

☐ Other (specify) _____

6. Where does your child eat?

☐ Sitting at the table ☐ Sitting on the floor ☐ Other

7. How often does your child eat outdoors?

☐ Daily ☐ Weekly ☐ Monthly ☐ Hardly ever or never

8. When he/she eats outdoors, does he/she

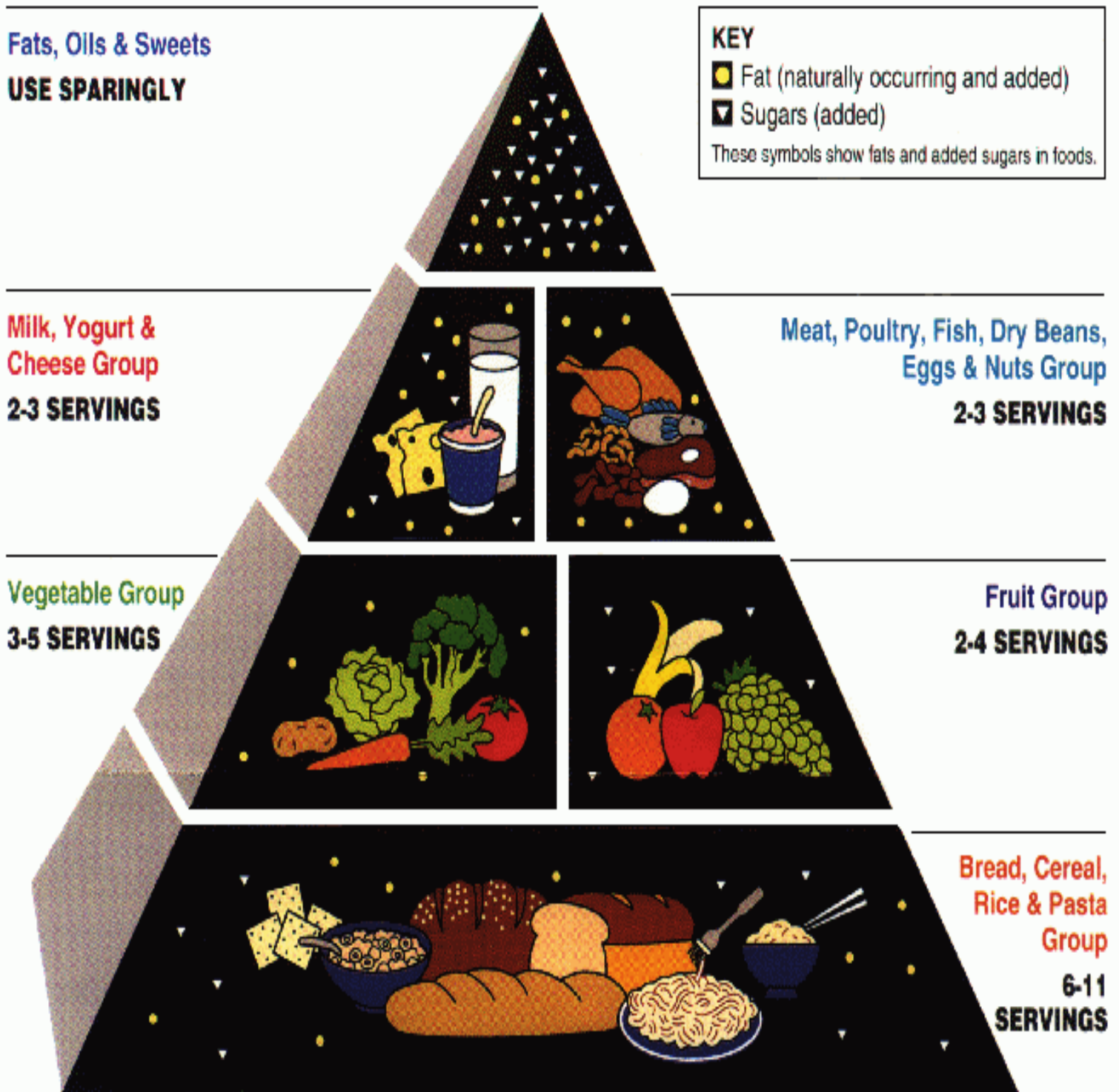
☐ Sit at a table ☐ Sit on the ground ☐ Other

FOOD FREQUENCY FORM

Indicate the number of times the following foods are eaten by placing a check (☐) in the appropriate column.

	2-4 x/day	Once daily	3-4 x/week	Once Weekly	Seldom or Never
Beef, Hamburger, or Ground Beef Dishes					
Pork, ham					
Poultry (chicken, turkey).					
Fish, seafood, tuna					
Game meats (deer, squirrel, rabbit)					
Egg					
Peanut butter.					
Dried beans, peas, lentils					
Milk, yogurt					
Cheese					
Pudding, ice cream, custard					
Enriched bread, rolls, biscuits, muffin					
Fortified cereal (dry or cooked)					
Crackers					
Enriched rice, spaghetti, macaroni, noodles					
Enriched tortilla, pita bread					
Orange, grapefruit, tangerine					
Orange or grapefruit juice or vitamin C					
Fortified or enriched juice					
Strawberries, cantaloupe					
broccoli, cauliflower, cabbage					
Carrots, sweet potatoes, pumpkin, hubbard or butternut squash					
Other fruits/vegetables					
Apples, bananas, pears, peaches, apricots, watermelon, etc					
Green beans, peas, potatoes, lima beans, corn, Brussels sprouts, etc.					
Fruit flavored drinks, soft drinks					
Tea, coffee					
Candy, donuts, sweet rolls, cake, cookies, pie					
Potato chips, corn chips, cheese puffs					
Water					

DIAGRAM #7



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Subsection 4.10 Lead In Pregnancy	Revised

Lead In Pregnancy

Introduction:

Clinical

All women contemplating pregnancy and who are concerned about lead should inquire with either their physician or nurse midwife about being tested for lead. In the ideal situation this testing should be done before becoming pregnant. If the prospective mother feels there is a chance that she may have been exposed to lead then a blood test to check for lead can be performed. As is well known, lead in a pregnant woman's body does cross the placenta and enters the body of the fetus. This crossing over is thought to occur at all levels including less than 10 micrograms per deciliter.

Placental transfer of lead can begin within the first trimester of gestation and can continue throughout fetal development. Changes that occur during pregnancy can call upon the body to release stored minerals. Because the body is unable to distinguish between calcium and lead stores, lead is often released along with other minerals into the blood stream. Lead stored in the pregnant woman's bones can be released into the fetus' brain, bones and other organs. Unborn babies that are exposed to lead may be more likely to be born prematurely and can be of smaller birth weight. There are studies that suggest that lead exposure may be a contributing factor to miscarriage, fetuses exposed to lead can have both learning and behavior problems.

The level of concern in pregnant women has not been clearly identified. At present there is insufficient clinical knowledge or experience with any chelating regimen(s) to recommend treating pregnant women who have elevated blood lead levels. Until clinical research is conducted and results evaluated, no recommendations can be made.

Educational Module for Pregnant Women or One Contemplating Pregnancy

A pregnant woman with lead in her body can pass it to her baby. Homes built before 1978 often contain lead based paint. The paint can become worn or old, peel and create dust. Lead can harm an unborn baby's brain and nervous system. Lead can cause problems such as pre-mature birth, small size and birth weight, miscarriage or stillbirth, along with learning and behavior problems for the child later on. Both present and past exposure to lead can cause problems during the pregnancy and put an unborn baby at risk. As a fact of interest, the human body is not able to tell the difference between lead and other body minerals.

Present Exposure

A pregnant women who breathes in or swallows lead, gets it into her blood stream and passes it though the placenta (the organ that supplies oxygen and nutrients to the baby). The lead gets into the unborn baby's bones and organs including the brain.

Past Exposure

Lead enters the mothers' blood stream and some gets stored in her bones where it can remain for many years. During pregnancy, the body needs minerals stored in the bones. Lead may be released along with other minerals, and pass through the placenta into the baby's bones, organs and brain. Past exposure to lead should be a consideration in terms of a possible risk factor. This information should be communicated to the pregnant woman's physician/specialist along with discussion regarding blood lead testing.

Assessment for Lead Poisoning in Pregnant Women

Health Care providers/physicians/health care facilities, including but not limited to health departments, hospitals, clinics and health maintenance organizations that serve pregnant women, should perform a lead risk assessment of pregnant woman as part of the first prenatal visit. A questionnaire for assessing risk of lead poisoning in pregnant women has been developed by the MDHSS. (Diagram #8)

The questionnaire is designed to be self administered, with the responses being reviewed by the health care provider to clarify any unknown or incomplete responses. Any positive response to the questionnaire should be considered an indication of lead poisoning risk to both the unborn child and pregnant woman. The pregnant woman should ask her physician about a blood lead test. The completed questionnaire should become a part of the woman's medical record; additionally, health care providers/facilities, health maintenance organizations, etc. identifying a pregnant woman with risk factor(s) should take the appropriate steps to refer the pregnant woman to a licensed physician or health care provider for blood lead testing.

Pregnant women at risk should be venous blood lead tested. Testing can be done at the physician's office or at the local health agency. Should they object to being tested then a written statement that identifies the reason for refusing the testing should be obtained. The refusal statement should include the woman's name, date of birth, reason for refusal and date of refusal and should become a part of the woman's medical record.

Referral of Pregnant Women with EBL Levels

All health care facilities serving pregnant women, should take the appropriate steps to refer pregnant women with EBL levels (referred to in 19 CSR 20-8.110.7) for follow-up to a health care provider or physician practicing medicine in any of its branches and licensed pursuant to chapter 194 RSMo.

Follow-up of EBL Pregnant Women

At present, there is not enough medical knowledge or experience with chelating agents (medications that remove lead from the body) and the pregnant woman therefore chelation therapy for pregnant women is currently not recommended. Until further research is completed no other recommendations can be made. For follow-up guidelines regarding pregnant women less than age 18 yrs. with elevated lead levels, it is recommended that the current MDHSS/DSS Childhood Blood Lead Testing and Follow-up Guidelines be utilized to determine re-test interval frequency and all other follow-up activities. For those women greater than 18 years of age, it is recommended that the Agency for Toxic Substance and Disease Registry (ATSDR) adult guidelines be referenced or a clinical Toxicologist be consulted regarding follow-up activities.

Blood Testing at Childbirth

Upon birth of the child, depending on the mother's blood lead elevation, the child's or placental blood may be tested for lead at birth to alert the physician to future care needs of the child.

Care of the Mother Following Childbirth

Blood testing and treatment regarding lead poisoning of the mother following birth of the child should be determined by the woman's physician utilizing current follow up guidelines.

DIAGRAM #8

Missouri Department of Health and Senior Services Questionnaire for Lead Poisoning in Pregnant Women

Name: _____ Medicaid/Insurance Number: _____
Last First

Date of Birth: _____ County of Residence: _____

Check all that apply below.

- ☐ Were you ever told you had Lead in your blood?
- ☐ Are you aware of any other household members that currently have or had an elevated lead level in the past year?
- ☐ Do you, or have you in the past year, lived in or spent 10 hours a week or more, in a house built before 1978 while remodeling or renovations were being done?
- ☐ Do you or anyone in your household work in an occupation where lead is used?
- *See Work/Job Source listing below and circle all that apply.**
- ☐ Do you live with an individual that has a hobby that uses lead?
- *See Hobbies listing below and circle all that apply**
- ☐ Do you use "Traditional" medicines or cosmetics?
- *See Traditional Medicines and Cosmetics listings below and circle all that apply.**

<u>WORK/JOB SOURCE</u>	<u>HOBBIES</u>	<u>TRADITIONAL MEDICINES AND COSMETICS</u>
Plumbers, pipe fitters	Glazed pottery making	Asian-Chuifong tokuwan
Brass/copper foundry	Target shooting at firing range	Pay-loo-ah, ghassard, bali goli
Lead Miners	Reloading cartridges and lead shot	Mexican-Azarcon and greta (also known as liga, Maria Lusua)
Lead smelters and refiners	Stained glass making	Kandu
Demolition workers	Molding fishing sinkers, bullets	Saott, cebagin
Auto repair	Car or boat repair	Alacon, coral and rueda
Glass manufacturers	Home remodeling	Middle Eastern – alkoohl, kohl
Plastics manufacturers	Furniture refinishing	
Radiator repair		
Gas station attendants	<u>ENVIRONMENTAL</u>	
Firing range instructors	Lead sealed plumbing	
Policemen	Lead painted homes	
Battery manufacturers	Mini Blinds	
Steel welders/cutters	Soil/dust near industry/roadways	
Construction workers Shipbuilders	Jewelry (metal based)	
Bridge reconstruction workers	Ceramic ware/pottery	
Solid waste production	Lead sealed cans (imported)	
Chemical and chemical preparation		
Printers		

General Information: Lead can be passed to your unborn baby.

If you checked one or more of the above, please ask your doctor about a Blood Lead Test. Office staff will review this form with you and clarify any questions you may have.

Sources of Lead Exposure

- Paint-lead dust can be formed when lead based painted surfaces/objects rub together or are dry scraped, sanded or heated. This dust can get on things that we touch. Lead based paint may be a hazard on surfaces that get a lot of use/work such as doors, windows and sills, railing, porches, stairs, fences, etc. Lead dust from lead based paint can go into the air and settle on objects in our environment. This dust can re-enter the air when we sweep, vacuum, or walk through it.
- Water-sources such as pipes and faucets either made with lead or joined together with lead can contaminate the water we use.
- Food-food that is grown in soil that contain lead, foods that are stored in lead crystal, some ceramic ware, or in cans with lead seams can get into foods or liquids stored in them.
- Soil- previous highway pollution, back when gasoline contained lead and the fumes settled on the nearby soil areas. Also lead from lead painted buildings that are peeling/flaking fall into the soil.
- Other sources- Making stained glass or refinishing of furniture, pottery making, folk remedies that contain lead such as “Azarcon”, “Greta”, Pay-loo-ah”, “Marie Luisa”, “bali-goli” and others. Mini-blinds and some cosmetics can be sources of lead exposure.

Symptoms

Many times there are NO symptoms of lead exposure, especially at lower exposure. When symptoms are present they can include:

- Headaches
- Abdominal pain
- Changes in mood
- Anemia (low iron in the blood)
- Muscle or joint pain
- Tiredness

Ways to reduce Exposure

- Consider getting tested for lead. A doctor or local health department can do testing. Blood tests can measure the amount of lead in the blood. If there is lead in the blood, steps can be taken by you to limit the exposure, help lower the amount of lead in the system, and reduce the family’s exposure. Regular prenatal check ups are important to both the pregnant woman and the unborn child.
- Clean floors, window sills/frames and other suspect areas by mopping or sponge cleaning with warm water and a general all-purpose cleaner weekly. Rinse sponges and mops well after cleaning any dusty/dirty areas.
- Use a vacuum with a HEPA filter. This type of vacuum will trap lead particles, carefully empty the contents collected. Use water to moisten contents and limit the spread of dust particles.
- Eat nutritious meals that are high in folic acid, calcium and iron. Eat a good variety of foods from the five (5) food groups whenever possible.
- Hot water from the TAP is more likely to contain higher levels of lead. Avoid making coffee, cocoa, soups or other drinks using hot tap water. Once the baby is born AVOID USING HOT TAP WATER TO MAKE FORMULA, CEREALS, OR OTHER FOODS/DRINKS FOR THE BABY/CHILD. Have your water tested; contact your Local Health Department for information, if you suspect a problem. Let the cold water run for at least 30 seconds before drinking it or using it in cooking.
- Foods and liquids should not be served or left in open cans with lead seams, in lead crystal or ceramic ware/pottery that could be lead glazed. Avoid drinking hot liquids out of ceramic type containers if you are not sure about the type of glazing it may have had.
- Wash hands especially after cleaning and before meals/snacks.

- Remove shoes before entering your home to reduce bringing lead from soil into your home.
- Be choosy about the types of hobbies you do that could expose you to lead for example: refinishing furniture, making leaded stained glass.
- Avoid using products that contain lead such as cosmetics and folk remedies that are not made here in the United States.
- Mini blinds that are made outside the United States may contain Lead. If you are unsure where yours were made replace them with blinds that say “Lead Free or made without lead additives” on the box.
- Don’t remove lead paint, let trained professionals remove it. If remodeling is necessary, find a temporary place to stay, until the remodeling is finished and the work area is cleaned properly.
- If you do not own your home or are renting be sure to let your landlord know if you have painted surfaces that are chipping, peeling or worn.
- If your job has lead hazards talk with your doctor or supervisor right away if you are pregnant or may be planning a future pregnancy. If a household member works with lead on their job make sure the person showers and changes clothes **BEFORE** coming home. Wash work clothes separately from all other laundry.

Breastfeeding

The distribution of Lead in breast milk and possible health effects continues to be studied. It is not clear at present the specific health effect low-level exposure via breast milk may have on an infant. More research is required to better understand the impact on health. All breast-feeding concerns should be openly discussed with the pregnant woman’s physician (OB, or Family Practice). Prevention strategies may include behavior modification, improving nutrition; improving general knowledge regarding lead poisoning, storage of lead etc. and these strategies should be communicated to women at possible risk. At present, the general feeling is that breast-feeding should be encouraged under most circumstances.

However, breastfeeding concerns should be discussed with the woman’s physician as part of comprehensive pre-natal care.

Testing

Women of childbearing age and pregnant women who are found to be at risk for Lead Poisoning can receive lead testing from either their doctor or local health department. All women of childbearing age and pregnant women should receive information regarding lead hazards. Nutritional counseling should also be provided. Clients can be referred to WIC if eligible. The local health department will work closely with the parent/family for blood levels taken from the vein that are 20µg/dL or greater. This also includes blood level 15-19µg/dL that are taken 3 months apart.

Pregnant Women Enrolled in the Medicaid Program

Pregnant women under the age of 21 years may have an environmental assessment covered as a Healthy Children and Youth Service. Pregnant women who receive a risk appraisal and are shown as being at risk for lead poisoning and who have a blood lead level of > 20µg/dL or greater or two 15-19µg/dL levels taken 3 months apart, may qualify for Missouri Medicaid Prenatal Case Management services. If the pregnant woman is under the age of 21 years and meets the same blood level numbers she may choose to receive Medicaid’s Healthy Children and Youth Program (HCY) case management services instead. The services are the same in type of service and may not be provided for the same periods.

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	Revised

Parental Occupational Lead Hazards

Parental Occupational Lead Hazards and How They Provide an Exposure Source for Children

Lead is a metal that is used to make ceramics, batteries, paint, plastics, some rubber products, etc. Lead gets into the body in different ways. It can enter through the lungs when inhaled or through the mouth when swallowed. Lead can be in the form of;

- Dust- sanding or removing lead based paint, cutting of lead pipes
- Fumes or Vapor- lead that is melted is usually exposed to high temperatures. During this process “fumes” are created and can be breathed in or swallowed. When steel that contains lead is welded (for example: bridge construction workers that cut/weld steel, construction workers, ship builders etc.) lead fumes can be also taken in by the body

Fine Particles- These moist particles are produced when paints containing lead are used in sprayers to paint ships, bridges, buildings, etc. It’s important to be aware of lead poisoning because lead can accumulate in your body without you ever knowing.

Parents’ jobs can expose both them and other members of the family to LEAD. Many parents are not aware of lead in the work place and can unknowingly expose children

OCCUPATIONAL SOURCES

Some of the job related sources of lead are:

- | | |
|--|--|
| • Plumbers, pipe fitters | • Brass/copper foundry |
| • Lead miners | • Lead smelters and refiners |
| • Auto repairer | • Glass manufactures |
| • Radiator repair | • Shipbuilders |
| • Printers | • Firing range instructors |
| • Plastics manufactures | • Policemen |
| • Demolition workers | • Steel welders and cutters |
| • Construction workers | • Bridge reconstruction workers |
| • Gas station attendants | • Solid waste production |
| • Battery manufacturers | • Chemical and chemical preparation manufactures |
| • Industrial machinery and equipment operators | |

SYMPTOMS OF LEAD POISONING

Some symptoms of lead poisoning can be the same symptoms as other medical illnesses or problems. It is important to see your doctor if you notice these symptoms. Know the possible warning signs.

- | | |
|--|------------------------------|
| • headache | • tiredness |
| • muscle pain | • joint pain |
| • tremors (trembling, shaking, or shivering) | • insomnia (unable to sleep) |
| • lack of Appetite | • weakness |
| • abdominal pain | • dizziness |
| • nervousness | • metallic taste |

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Let your doctor and your employer know how long and to what degree your symptoms have been present. A simple blood test can let you know if your blood lead level is too high. Treating lead poisoning could mean the use of “chelating medications” that help remove/reduce the amount of lead in your blood, if your blood lead level indicates and your physician determines this is necessary..

LEVEL OF CONCERN

Lead in blood is measured in micrograms per deciliter. The level of concern for adults is twenty-five (25) micrograms per deciliter.

WHAT YOU CAN DO TO REDUCE EXPOSURE AND “TAKE HOME LEAD”

- When removing work coveralls/outer protective clothing, remove these first completely before removing your respirator.
- Avoid wiping the sleeve of your work coveralls against your face. Don’t bring contaminated clothing and protective work equipment into washing or eating areas.
- Limit lead fumes by routing fumes to containment/collection systems in your work section.
- Use HEPA (high efficiency particulate air) vacuums to clean up surfaces that are exposed to lead dust.
- When you are not at work store your protective work equipment in an area that is clean and limits contamination.
- Keep your foods/liquids out of the work area and away from contaminated clothing, other equipment etc.
- If showering/clothes changing facilities are not available, shower and wash your hair as soon as you finish work to help reduce sending lead dust into the air.
- Wear your protective equipment such as face protectors, respirators (must be equipped with a hepa filter), safety glasses, coveralls, helmets, gloves, shoes/shoe covers, etc. Use the right kind of equipment for the type of exposure.
- Be aware of lead hazards. Tell your supervisor if your protective equipment is in need of repair or replacement. Know how to properly use your equipment and be sure it fits correctly. Keep it clean and check filter regularly.
- Use good personal habits. Remember to try and keep hands and objects away from your mouth. Avoid touching face areas such as nose and mouth.
- Wash your face and hands with soap and water often
- Follow company rules, re: showering at work and changing clothes.
- Always use clean towels to dry your hands/body areas.
- Avoid drinking or eating while performing your work duties.
- Keep work clothes separate from your other clothing, launder clothes separately from all other family clothing.
- Have all required medical exams and lab tests. Keep all follow-up appointments and follow your doctors treatment recommendations.
- Follow your employers company policies created to help protect your health in the work place.
- Be aware of the OSHA (Occupational Safety and Health Administration) lead standard. Know what it requires and recommends, if you are covered under this standard.

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PREVENTION

Prevention is the key as a first defense against job related exposure and “Take Home” lead in children. Employer and employee education about job related lead exposure and ways to reduce/eliminate exposure can play an important role in reducing exposure to children. Occupational/family physicians, nurses, and the licensed risk assessor along with other health care personnel, play a significant role in prevention efforts and can be excellent resources. They can assist the parent in understanding and limiting work place lead exposure, and ultimately benefit the child.

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	Revised

Nursing Care Plans

The purpose of care plans is to establish a plan involving the parent/caregiver/age appropriate child/physician/social worker/community resource individual etc. that will bring the child's blood lead level down to below 10 micrograms per deciliter. This care plan can also serve to help meet identified needs. Results of assessments may be utilized to identify problems, interventions, outcomes and goals. Both short and long term goals should be established and measurable. Goals can be revised or extended depending on progress. Collaboration involving these individuals in the creation of the care plan and the decision making process helps to encourage ownership/participation and can be critical to the success of the plan and overall outcomes.

Refer the family to appropriate resources such as:

- Primary care provider
- Health plan
- Local health department
- Nutritionist/dietician
- Women, infant, and children's program (WIC)
- Local human services agencies
- Local education agency
- Well child clinics
- Housing agencies, i.e., HUD, homeless shelter, etc.
- Environmental agencies
- Division of Family Services

Client Outcomes

Outcomes that can be measured would include but not be limited to the following:

- The family will describe the environmental lead hazard and how it affects reproduction, growth, and development;
- The family will describe measures to eliminate or control the lead hazard;
- The family will explain the effects of the leaded environment on health; and
- The family will describe changes in their lifestyle to avoid the lead hazard.

As a result, the family will maintain a safe environment, will carry out practices which minimize the lead hazard, will have decreased blood lead levels, and the children will demonstrate adequate growth and development.

Regardless of risk, all families must be given detailed lead poisoning prevention counseling as part of the anticipatory guidance. A sample of a Nursing Care Plan is included in Diagram # 9

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Suggested Nursing Diagnosis

For those agencies using nursing diagnosis, the following are some suggestions for care plans.

- Potential for lead poisoning related to (R/T) continued exposure to lead environment.
- Fear R/T knowledge deficit of the effects of lead on children.
- Optimal Nutritional status R/T age requirements and nutritional needs to prevent increased absorption of lead.
- The parent/caregiver may feel powerless to a perceived lack of control over current situation R/T health and environmental hazards.
- Potential for alteration in nutrition associated with lead poisoning by interfering with iron and calcium absorption.
- Home maintenance/management impaired R/T insufficient finances and inadequate support systems.
- Altered growth and development R/T lead in the environment.
- At risk for lead poisoning R/T knowledge deficit of sources of lead poisoning.
- Anxiety R/T knowledge deficit of prevention of childhood lead poisoning.
- Altered cognitive development R/T the effects of lead poisoning on children.
- Altered parenting R/T lack of appropriate responses to client's needs.
- Alteration in nutrition of less than body requirements for growth R/T lack of interest in food.
- Possible high risk environmental hazards R/T lack of coordinated community activities and resources.

NOTE: This list is not all-inclusive. Other nursing diagnoses may be needed or utilized to meet the demands of individual cases. The nursing care plan should flow from the diagnosis and lead to the desired outcome, or identified goals.

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DIAGRAM # 9

MISSOURI DEPARTMENT OF HEALTH AND SENIOR SERVICES CARE PLAN

CLIENT NAME (LAST, FIRST, MIDDLE)		COUNTY OF RESIDENCE	CLIENT NUMBER
DATE	DIAGNOSIS	INTERVENTIONS	OUTCOMES
mm/dd/yy	Knowledge deficits related to diagnosis of elevated blood lead level/lead poisoning	Provide parent/caregiver education regarding lead poisoning. Assist and support family in understanding instruction given.	Parent/caregiver will be knowledgeable Re: lead poisoning and assist in identifying interventions to resolve the problem within one month
mm/dd/yy	Potential for lead poisoning R/T continued exposure to lead contaminated environment and risk producing behaviors.	Perform home visits to assess behaviors. Continue instruction Re: preventive actions, and support parent/caregiver in positive actions. Collaborate with Licensed Lead Risk assessor if level indicates regarding environmental lead hazards and interventions.	Family will decrease or eliminate exposures to lead hazards in the environment within 1-2 months. Family will attempt to correct child's risk producing behaviors based upon recommendations of the case manager and licensed lead. risk assessor within 1-2 months. Child will wash or have hands washed before meals, after play before naps/bedtime etc. within 1 week.
mm/dd/yy	Knowledge deficit relates to nutrition requirements for age and for recommended nutrition needs to assist in reducing gastrointestinal absorption of lead	Assess growth and development per AAP guidelines or Periodicity Schedule. Instruct parent/caregiver Re: Nutrition related to age requirements and nutritional needs specific to the reduction/prevention of lead poisoning. Refer to WIC if indicated. Refer for nutritionist counseling if indicated.	Parent/caregiver will be knowledgeable regarding child's nutritional needs. Child will maintain adequate growth and development levels and decrease lead absorption through gastrointestinal system. Blood lead level will be <10 micrograms/deciliter.

Section 4.0 Public Health Nursing and Medical Management Subsection 4.13 Public Health Nursing, Nutrition, Hygiene and Medical Management—Clinical and Developmental Effects—Reporting Requirements-Lab Tests—Acute Ingestion and Chelation Therapy	Page 1 of 6 Revised
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Medical Management – Clinical and Developmental Effects – Reporting Requirements-Lab Tests – Acute Ingestion – and Chelation Therapy

Treatment Guidelines

Patients may require some or all of the care described in this section. These guidelines should not be construed as to prohibit such flexibility, nor should clinicians view them as final guidance. The treating health care provider should ALWAYS reference other sources such as the Physician's Desk Reference (PDR), Area Clinical Toxicologist, Product Information Literature, CDC, Internet, or other reference libraries for recommended dosage, treatment methods and duration, precautions, and contraindications relative to childhood lead poisoning.

Management Guidelines

A complete physical to evaluate all medical parameters, especially behavioral, neurological, and developmental areas of the child should occur along with identification of immunization status. Order specialty consultation as needed. Assess nutrition to validate a diet adequate in calories, protein, calcium, trace minerals, vitamins, and iron, and low in fat. Assessment of parent/caregiver knowledge; i.e.: lead poisoning with resulting parental education should be an important part of overall management.

Range of Toxicity

Clinical effects can range from no obvious or subtle symptoms to death. Toxicity depends on the nature and duration of exposure. Lead entering the body from different sources and through different pathways presents a combined toxicological threat. Multiple low-level inputs can result in a significant aggregate exposure. Low-level exposure during early development has been linked to deficits in neurobehavioral-cognitive performance later in childhood and adolescence. These effects can be seen even in the absence of other systemic symptoms such as those listed previously.

Clinical Effects

Most lead poisoning is slow in onset and results from gradual accumulation of lead from sources of low solubility.

- Neurologic - Encephalopathy (due to an increase of intracranial pressure) is an ominous sign. Blood lead levels of ≥ 70 $\mu\text{g/dL}$ can cause coma, altered mental status, convulsions, or even death. although encephalopathy is usually associated with levels ≥ 120 $\mu\text{g/dL}$. Lower levels may be associated with developmental and behavioral neurotoxicity. Other neurological findings may include clumsiness, frank ataxia, weakness, and peripheral neuropathy (i.e. foot drop, decreased hearing acuity). Nonspecific symptoms may include fatigue, malaise, anorexia, unexplained hyperirritability, sleep disturbances, and hyperactivity.
- Gastrointestinal - Vomiting, constipation, recurrent or persistent abdominal pain (colic), or loss of appetite.
- Renal - Nephropathy, proteinuria, renal insufficiency, renal hypertension.
- Hepatic - Lead salts may cause liver injury. Rarely is liver damage seen with chronic inorganic lead exposure.
- Cardiovascular - Chronic exposure in an adult leads to renal hypertension and secondary cardiac effects.

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- Metabolic - Vitamin D deficiency (decrease synthesis of the active metabolite 1, 25 Dihydroxy, Vitamin D3). Decreased stature or growth may be seen.
- Musculoskeletal - Lead may be deposited in bone or teeth. Lead deposition in bones interferes with normal bone metabolism of calcium resulting in opacity in the metaphyseal plate. Also, lead sulfide precipitates in the margin of the gums causing a blue-black line; this is most often present in older children and adults. This line is characteristic in that it can be rubbed off the gum to differentiate from the normal hyper pigmented lines seen in dark skinned individuals.
- Reproductive - Associated with sterility, congenital anomalies, abortion, still births and neonatal deaths in humans. There is also decreased, abnormal sperm, or decreased mobility of sperm.

Laboratory Findings

- Blood Hematology
Elevated blood lead level. Anemia, microcytosis, hypochromia, basophilic stippling (blockade of erythrocyte pyrimidine nucleotidase), or normo chromic – normo cytic.
- Blood Chemistry:
Vitamin D deficiency.
- Urine
Nonspecific nephritis, nonspecific changes in renal tubular lining.
Acute proximal tubular dysfunction (Fanconi's Syndrome) glucosuria, aminoaciduria, phosphaturia, bicarbonaturia, elevated delta aminolevulinic acid (d ALA), elevated coproporphyrin and proteinuria.

Acute Ingestion

Prevention of Absorption - Methods

Emesis

The time-honored method of gastric decontamination using ipecac to induce emesis may not be appropriate in various poisonings and clinical circumstances. Whereas ipecac may be most suitable for first line treatment in the home, other methods of gastrointestinal decontamination may be preferred in many clinical settings. If emesis is indicated and there are no contraindications to its use, syrup of ipecac may be administered per recommended dosage and method.

Contraindications for emesis include coma, seizures (or imminent seizures), inability to protect airway or concurrent ingestion of a corrosive agent. Relative contraindications to the use of syrup of ipecac in adults include severe hypertension, cerebrovascular aneurysm, diaphragmatic hernia, symptomatic pulmonary edema and questionably, women in the third trimester of pregnancy. In children, prior fundoplication procedure for gastroesophageal reflux relatively contraindicates the use of ipecac.

Activated Charcoal

At this time the efficacy of activated charcoal is questionable in the instance of acute/chronic lead intoxication.

Whole Bowel Irrigation (using polyethylene glycol and electrolytes, PEG-ELS, i.e. Golytley®)

See Physicians Desk Reference (PDR) for indications, recommended dosage, precautions and contra-indications.

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Cathartics

The use of cathartics routinely in overdose cases has been questioned. The clinician should consider the fluid and electrolyte status of the patient as well as the efficacy of cathartics when deciding to use these adjuncts. Cathartics speed gastrointestinal transit time and decrease the time that the drug or chemical is available for absorption. Cathartics also hasten the elimination of the charcoal/drug complex in the GI tract. Cathartics available include citrate of magnesia and sorbitol.

Caution: *In infants and small children, severe hypernatremic dehydration from gastrointestinal fluid losses has occurred with sorbitol. Exact dose response is not yet determined. If using multiple doses of activated charcoal, do not use a preparation containing sorbitol or cathartic repeatedly.*

Special Considerations--Ingestion of lead foreign bodies (i.e. lead curtain weights or fishing sinkers) has resulted in elevated blood lead levels and rarely (only 2 cases reported) death from severe plumbism. Most cases can be managed conservatively with a radiograph to confirm the foreign body position (i.e. not lodged in the esophagus). In consideration of the fact that children found to have a lead foreign body may have pica, these children may already have an elevated lead level from previous behavior. Therefore, some authors recommend that all children found to have a lead foreign body should receive testing for blood lead level. This may not reveal elevated blood lead from the acute ingestion but rather may reflect pica in the past. The patient may then be managed at home and the caregiver(s) may be instructed to observe for passage of the foreign body in the stool. The patients may be referred to their private physician for consideration of a repeat radiograph in 7 days to confirm passage of the lead. If the lead foreign body has not passed within a 2-week period, a blood lead level may be indicated. In the two isolated reported cases of fatality, the lead foreign body was found retained in the stomach for prolonged periods (in one case 38 days). Presumably, the acid corrosion in that location was the deciding factor in excessive absorption. One may consider use of cathartics or bowel irrigation to facilitate the passage of the foreign body, but their efficacy remains to be proven.

Chronic Ingestion

Stop exposure and initiate timely treatment .It is critical to have the child removed from the lead contaminated environment. The child should not return until abatement has been completed.

Regarding elements below, it is advised to access the Physician's Desk Reference (PDR) for guidance regarding use and corresponding Medical Management components. ** Additionally reference Section 2.3 for the Laboratory Reporting Requirements 19CSR 20—20 for specifics regarding the required reporting of all blood lead levels.

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Laboratory Tests Necessary

- CBC with a smear
- Creatinine
- Urinary Analysis
- Blood lead level
- BUN
- FEP (occasionally)

Lab Tests for Chelation Treatment

- Daily urine for specific gravity as checked in dehydration
- Dipstick check of urine for glucose, protein and blood

Other Baseline Lab Tests To Be Considered

- Serum iron
- Calcium
- Flat plate x-ray of abdomen looking for opaque flecks (if recent ingestion suspected)
- TIBC
- Protein
- LFT's
- Serum ferritin
- Electrolytes

Elective Lab Tests:

Long bone x-rays to look for “lead lines” in selected cases (rarely indicated because findings do not influence treatment, but do reflect duration of previous exposures).

Investigational Lab Test: X-Ray Fluorescence

X-ray fluorescence is an investigational technique where a photon energy x-ray beam is applied to a superficial bone (tibia) and the resultant fluorescence photons are counted. X-ray fluorescence is used by some investigators in identifying individuals who have a large lead burden in their slow compartments (cortical bone) and might be subject to significant rebound following a course of chelation.

Urine Lead Excretion Study

Many experts consider this test obsolete “rarely is this test helpful in the management phase.” A provocative urine lead excretion study is not necessary for any symptomatic patient or patients whose blood lead level is ≥ 45 $\mu\text{g/dL}$. Chelation therapy would be instituted in these patients.

Supportive Care

- Maintain adequate urine flow (children: 1-2 ml/kg/hr)
- Fluid maintenance. Maintain adequate intake (IV and/or PO) of 1 to 1 1/2 times maintenance (unless concern over lead encephalopathy). Do not force fluids.

Lead Encephalopathy (as a result of cerebral edema)

Consult an intensivist, internist or neurologist for current principles of management.

- Hyperventilation (paCO₂ 25-30) may be beneficial.
- 20% Mannitol. *For dosage see Physician’s Desk Reference (PDR).
- Diuretics and fluid restriction possibly helpful.
When using the above three therapies the health care provider should check for possible contraindications in the lead poisoned patient.
- Dexamethasone possibly helpful
Contraindications: spinal tap, surgical decompression

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Seizures

Seizure management can be achieved through the use of anti-convulsants such as: Diazepam, Lorazepam, Phenytoin (Dilantin), Phenobarbital, etc., following the recommended dosage specifics, precautions, contraindications, etc. as noted in the Physician's Desk Reference (PDR). Rarely, general anesthesia may be required.

Chelation Therapy Treatment Guidelines

Patients may require some of the care described in this section. These guidelines should not be construed as to prohibit such flexibility, nor should they be viewed by clinicians as final guidance. *The treating health care provider should ALWAYS reference other sources such as the Physician's Desk Reference (PDR), Clinical Toxicologist, CDC, Internet, or other reference libraries for recommended dosage, treatment methods and duration, precautions, and contraindications relative to childhood lead poisoning.

There are several drugs used in the treatment of lead poisoning. These drugs capable of binding or chelating lead, deplete the soft and hard (skeletal) tissues of lead and thus reduce its acute toxicity. It should be remembered that all drugs have potential side effects. The length of chelation is determined by the specific agent being used. Oral chelation agents such as Succimer are being more widely utilized. Chelation may begin after urine flow is established. Check urine daily—observe for early signs of renal toxicity from chelation, i.e. proteinuria, etc. In general, chelation should have a rest period of a minimum of 2 days (7 days preferred) before resuming a second course of chelation therapy.

Chelation agents

BAL (British Antilewisite, dimercaprol, 2,3-dimercapto-1-propanol)

(Also contains benzyl benzoate and peanut oil.)

Administration: IM use ONLY.

In combination therapy with CaEDTA, BAL must be administered 4 hours before CaEDTA.

BAL should be administered before CaEDTA when treating lead encephalopathy in order to prevent worsening of encephalopathy that can occur with CaEDTA alone due to the mobilization of lead into the blood and across the blood brain barrier. ***BAL SHOULD NOT BE USED FOR CHILDREN WHO ARE ALLERGIC TO PEANUTS OR PEANUT PRODUCTS.

Dosage:

*(See recommended dosage/precautions/treatment duration and contraindications per Physician's Desk Reference (PDR), or consult clinical toxicologist, the Internet, CDC, or other reference libraries.)

CaNa₂EDTA (Calcium disodium edetate, Calcium disodium versenate, or CaEDTA)

Used for both chelation therapy and in the urine excretion study.

Chelation therapy administration: May be given IV or IM

Dosage:

(See recommended dosage/precautions/treatment duration and contraindications per Physician's Desk Reference (PDR), or consult clinical toxicologist, the Internet, CDC, or other reference libraries.)

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D-Penicillamine (Cuprimine®, Depen-titratabs®, 3-mercapto-d-valine)

Administration note:

Further consultation with the Regional Poison Center/toxicologist is advised. Administer with extreme caution. (It is recommended to write prescription with both generic and trade names to prevent the chance of penicillin being dispensed by mistake.) Penicillamine is not approved by the FDA for lead poisoning, but is an oral chelator used by many lead treatment programs.

Succimer (Chemet®, DMSA, meso 2,3-dimercaptosuccinic acid)

This is the main oral chelating agent for outpatient therapy and often used for inpatient cases also.

Dosage:

(See recommended dosage/precautions/treatment duration and contraindications per Physician's Desk Reference, or consult clinical toxicologist, the Internet, CDC, or other reference libraries.)

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Elevated Blood Lead (EBL) Risk Assessment and Hazard Management

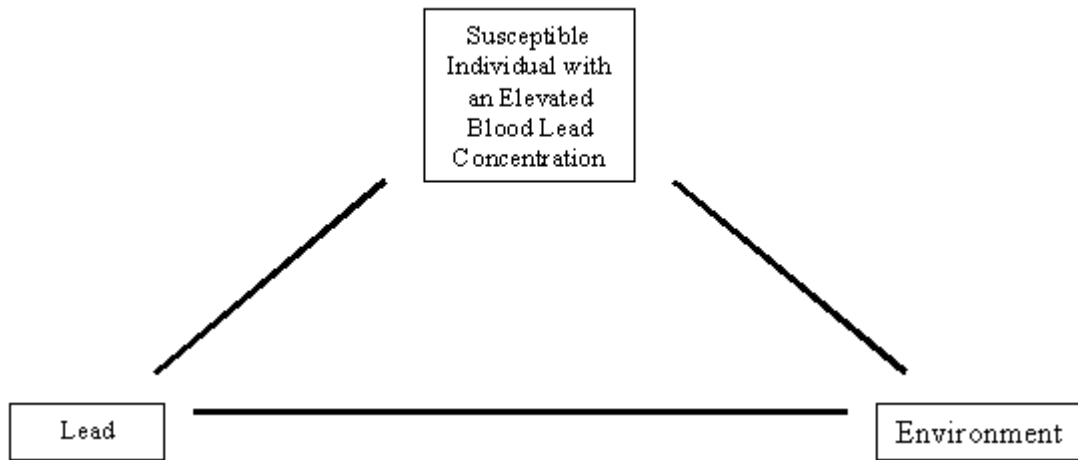
Introduction

There are four types of lead assessments that can take place on a dwelling, associated buildings, structures and bare soil areas.

- Lead inspections merely identify the presence of lead-bearing substances in surfaces, regardless of its condition or whether it presents a health hazard. It does not provide recommendations of options for addressing the lead or lead hazards. May be performed by either a licensed lead inspector or a licensed lead risk assessor.
- General lead risk assessments attempt to uncover *all lead hazards* of a structure or property, regardless of whether a child is poisoned, and provides recommendations of options for addressing the lead hazards. Must be performed by a licensed lead risk assessor.
- Lead hazard screens are visual examinations and a limited sampling of lead hazards that may cause exposure to children 6 and under, and provides recommendations of options for addressing the lead hazards. Must be performed by a licensed lead risk assessor.
- EBL Risk Assessments are performed in response to a child less than 72 months who meets the qualifying criteria described in this section. These assessments are more comprehensive with regard to types of hazardous sources investigated with emphasis placed on the recommendations for addressing the lead hazards. Although the EBL Risk Assessment often includes the analysis of a large variety of potential sources of lead hazards, the assessment does not include areas of lead-based paint, which is not deteriorated.

Note: There is a fundamental difference between an EBL Risk Assessment and a lead inspection, a general lead risk assessment, and a lead hazard screen. This section of the manual will discuss EBL Risk Assessments and provide guidelines for performing and reporting them.

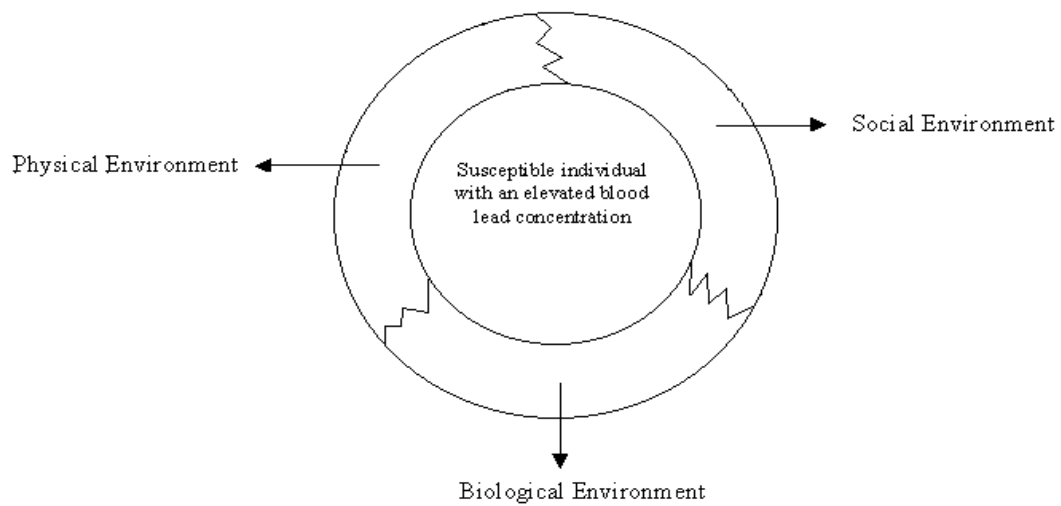
Nurse case management and environmental case management together encompass a holistic approach that seeks to improve health and wellness through an established epidemiologic process. This process will identify the characteristics of each of these facets (environmental, social, and biological) and their interactions that are causative to the EBL and implement a strategic plan for its correction and elimination. Critical analysis, follow-up, and closure are essential in order to ensure the child's health and well-being and that those other children are not poisoned by the same lead hazard in the future.



EBL Risk Assessments are conducted to identify the sources of lead exposure contributing to the child's condition. An EBL Risk Assessment is a specific type of epidemiologic assessment and follows the same model as any other disease-causing agent. This may be illustrated by applying an EBL case to the traditional epidemiologic triangle. The model implies that each component must be examined to determine how the lead is becoming biologically available in the environment and how the poisoned individual is becoming exposed and taking up that lead into his/her body.

Whether discussing the case management of a particular child or the elimination of childhood lead poisoning in a community, it is important to address each facet individually, and thoroughly consider the ways in which each facet interacts with the other. For example, the physical environment must contain a source of biologically available lead. The social environment includes personal hygiene of all members of the household, housekeeping, and supervision. The child's biological environment is important in that children are rapidly growing and developing. Relative to body mass, children take in more foods and absorb and assimilate far more of the foods eaten. Children with nutritional deficiencies, especially diets lacking sufficient amounts of iron and calcium, absorb a larger percentage of the lead taken into the body and also are more likely to exhibit pica tendencies.

An EBL case may also be applied to the wheel model of man-environment interactions:



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An epidemiologic assessment includes the following steps, this section describes in detail how to accomplish or perform each of these steps. In addition to these basic steps, there are also other important activities related to internal and external communication, documentation, surveillance, data collection, and data analysis. Because of the complexity of the management of an EBL case, the steps may not follow the exact sequence described above. Also, because of the complexity, it is essential to the success of the case management for the public health staff involved to function as a team to the greatest extent possible.

Step 1: Verification of Diagnosis

An EBL is defined as a venous blood concentration of 10 µg/dl or greater. Because of the increased risk of contamination when collecting a capillary sample, the diagnostic test must be performed on venous blood. Action is taken according to the degree of elevation and also considers the persistence of exposure over a period of at least three to four months. An EBL Risk Assessment is performed in the event that the child's blood lead concentration is greater than 19 µg/dl or if the concentration is 15 to 19 µg/dl for two consecutive tests at least three months apart.

Step 2: Establish the existence of an epidemic (greater than the expected number of cases)

An epidemic is defined as the occurrence of a particular disease that exceeds the endemic incidence rate for that population. An EBL, as defined in this manual, indicates that an individual has been excessively exposed to an environmental lead source. Also, it is most often the case that a lead hazard only poisons one child at a time, although it may poison many children over an extended period. Therefore, a single case of this disease is indicative of an epidemic related to a specific source, and if the criteria described in this section are met, an epidemiologic Assessment (EBL Risk Assessment in this case) should be performed.

Step 3: Make a quick survey of known case(s) and the community situation ("characterization of the epidemic")

Community data is often important in providing clues to the causative source. It is important to consider surrounding industry, history of the area, building structures, traffic, age structure of area housing, ethnic diversity and customs, etc.

It is often the situation that the assessment involves only a single case. This may make it difficult to identify the primary source of exposure, especially when multiple sources and hazards exist throughout the individual's environment. The primary source of the EBL may not necessarily be the most obvious or most extensive source, depending on the individual's habits and behavior. Therefore, when possible, it is very beneficial to be present during the interview with the parent/guardian when the Home Lead Assessment Questionnaire is being conducted.

Step 4: Formulate a Tentative Hypothesis

A tentative hypothesis should be drawn, speculating on the probable cause of the EBL based on the following sources of information:

- the Home Lead EBL Risk Assessment Questionnaire,
- knowledge of common community sources,
- chronological and developmental age of the child, and
- an initial visual assessment of the child's immediate environment.

The hypothesis should be general enough not to exclude any probable sources in the environment, but specific enough to focus the assessment to only include practical and reasonable sources. The hypothesis should be flexible, changing as information is collected and potential sources are eliminated. Occasionally, after all possibilities have been eliminated, new sources of environmental lead hazards are discovered. These cases are typically the exception and an initial "shot-gun" approach is not practical when working within limited resources and time constraints.

Step 5: Plan a detailed epidemiologic risk assessment.

After reviewing and considering all of the information from the sources listed in step 4 above, a detailed plan should be developed for the epidemiologic (EBL) risk assessment. The plan should include where samples will be taken, what type of samples are needed, and how many of each. The plan should also include all scheduling and notification activities. When planning the risk assessment, the following sources and pathways should be investigated:

- areas with paint or other surface coatings that is in deteriorated condition or is on a chewable, friction, or impact surface,
- lead in dust and soil,
- lead in drinking water,
- lead from industrial sources and wastes,
- lead from clothing, hair, skin, or shoes of workers that become contaminated with hazardous materials in the workplace that may inadvertently be carried to the home environment and/or an automobile,
- lead from ceramic tubs, especially cast iron, and
- lead from sources such as folk medicines, toys, jewelry, ceramic ware, progressive hair color-restorer, mini-blinds, pewter belt buckles, hobbies, etc.

Each situation in which a child is poisoned is unique and must be evaluated by a person or team of persons skilled and knowledgeable about lead poisoning, lead hazard identification, and interventions to reduce lead exposure.

Step 6: Conduct the risk assessment.

The risk assessment should be conducted in a manner such that:

- all appropriate information is correctly documented at the time of the Assessment,

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- the environmental lead hazard is identified and described to an extent that appropriate recommendations for lead hazard reduction and elimination can be made, and
- all minimum requirements established by the Missouri Department of Health and Senior Services, EPA, and local agencies are met for conducting an EBL Risk Assessment.

Step 7: Analyze the data.

All results of environmental sampling should be reviewed and a decision made as to whether they are problematic. Although threshold levels are valuable guidelines, it is important to remember they are established to provide adequate protection to public health with regard to certain parameters and to establish criteria for enforcement actions. When conducting an EBL Risk Assessment, it is important to consider the behavior and habits of the individual with the EBL. Extenuating circumstances, such as deviant behavior, may create a situation where the primary lead source does not exceed threshold levels and would not typically be considered as potentially hazardous. An example of such a situation is seen in cases of pica. Soil may be found to be the primary source, and even though the lead concentration is well below the threshold level, even for a high contact play area, the individual consumes enough of the soil to cause lead poisoning.

Also, it is important to consider the individual's routine, habits, and behavior to determine which of the hazards identified are the primary sources and which are secondary sources. Depending on these factors, the primary source may not necessarily be the most obvious source with highest lead concentrations or greatest amount of deterioration.

Step 8: Test the hypothesis.

Initially, it is very difficult to confirm if the hypothesis was correct. If the suspected sources are confirmed to contain excessive amounts of biologically available lead, it is to be assumed the hypothesis was correct. If this is the case, the individual's blood lead level should decrease over time after the source of exposure is controlled.

If the blood lead level does not decrease with time, a second environmental Assessment should be conducted. The scope of subsequent Assessments should be broadened to include possibilities that are more obscure. It is possible the blood lead level is being maintained as the result of clearing lead from soft tissues and bone and no additional sources will be identified. It is, however, advisable to error on the side of caution and conduct the follow-up Assessment, especially if the blood level continues to increase.

Step 9: Formulate conclusion.

If the information provided from the risk assessment is not contrary to the initial tentative hypothesis, it should be assumed that assumptions made by the

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hypothesis are correct. If the suspected sources are not found to contain lead, another hypothesis should be developed.

Step 10: Implement Control Measures.

Control measures are an extremely important part of the process of managing an EBL, but is the step most commonly skipped over. Control measures should include the following:

- counseling the family on any problem areas related to hygiene, housekeeping, behavior, supervision, customs, hobbies, career, lifestyle, diet and nutrition, etc.
- interim control methods designed to provide immediate protection from the lead hazards, and
- abatement strategies designed to permanently eliminate the environmental lead hazard as a threat to human health.

Step 11: Make final report.

The final report should include all information collected during the Assessment, copies of all forms submitted, results of all samples taken, and a detailed summary of the Assessment. The final report should also include a clearance Assessment to assure that abatement strategies have not left residual lead dust in the environment. The report should also include a discussion of the case, identifying any problem areas as well as effective practices.

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Environmental Management General Program Management

How to Become a Licensed Lead Risk Assessor

This section explains the procedure for becoming a Licensed Lead Risk Assessor, which is necessary to conduct an EBL Risk Assessment. For more information regarding how to become a licensed lead risk assessor please contact Lead Licensing at 1-888-837-0927.

Qualifications to Become a Licensed Lead Risk Assessor

The minimum education and/or experience requirements for a Lead Risk Assessor license includes at least one of the following:

1. A Bachelor's degree and at least one year of experience in a related field such as lead, asbestos, housing repair or inspection, and/or environmental hazard remediation work;
2. An Associates degree and two years experience in a related field such as lead, asbestos, housing repair or inspection, and/or environmental hazard remediation work;
3. Certification as an industrial hygienist, professional engineer, registered architect and/or certification in a related engineering/health/environmental field such as safety professional or environmental scientist; or
4. A high school diploma or certification of high school equivalency (GED) and three years of experience in a related field such as lead, asbestos, housing repair or inspection, and/or environmental hazard remediation work.

Training Needed to Become a Licensed Lead Risk Assessor

An applicant for a license as a Risk Assessor shall complete a Bureau of Lead Licensing, (BLL) or an Environmental Protection Agency (EPA)-accredited Lead Training, which consists of a three-day inspector course and a two-day risk assessor course. Both of the course examinations must be passed with a score of seventy percent (70%) or more.

Application Process

Applicants failing to apply within three years of the Risk Assessor training and who have not successfully completed annual refresher training, shall successfully complete the BLL- or EPA-accredited Risk Assessor training course again before submitting application for a Risk Assessor License.

Submit a completed application at least thirty (30) days prior to the date of the state lead examination to the Missouri Department of Health and Senior Services, Attention: Fee Receipts, P.O. Box 570, Jefferson City, MO 65102-0570. The following information shall be included:

1. Include a copy of the BLL- or EPA-accredited Lead Inspector and Risk Assessor training program completion certificates and any required refresher completion certificates.
2. Include two recent passport-size color photographs of the applicant's face without a hat or sunglasses (computer generated or photocopied photographs are not acceptable).
3. Include official academic transcripts or diploma.

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4. Include resumes, letters of reference, or documentation of work experience, which includes dates (month and year) of employment, employer's name, address and telephone number, and specific job duties.
5. Include appropriate documentation of certifications or registrations.
6. Include a check or money order made payable to the Missouri Department of Health and Senior Services for the nonrefundable fee of \$100.

State Examination

The state examinations will be held twice a month, once in St. Louis and once in the Kansas City area. Please call 1-888-837-0927 to acquire the exact date and time examination to be given. The state examination is also given in Jefferson City at the state office upon request.

Licensure Process

After the applicant passes the state Risk Assessor examination, BLL will issue a two (2)-year Risk Assessor license certificate and photo identification badge.

EBL Risk Assessment Medicaid Reimbursement

To qualify for Medicaid reimbursement, the following conditions must be met:

- Licensed in Missouri as a lead risk assessor; and
- Enrolled as a Medicaid provider.
- The client must be Medicaid eligible on the date of service

Medicaid will reimburse for an EBL Risk Assessment under the following conditions:

- A venous blood lead level of 20 µg/dl or greater
- A venous blood lead level of 15-19 µg/dl which remains elevated for two consecutive tests which are performed at least 3 months apart

Note: In order to be reimbursed by Medicaid, prior to performing the Assessment the Assessor performing the EBL Risk Assessment must have a Medicaid provider number. Medicaid does not reimburse for Assessments retroactively after a provider number is obtained. An Assessor may also, conduct Assessments in any county under a single provider number.

If you have any questions concerning this program, rates of reimbursement, or a description of required activities, contact the Provider Relations Unit at 1-800-392-0938. For additional information regarding lead screening, treatments, and assessment, refer to the Department of Social Services web site at internet address www.dss.state.mo.us/dms. Refer to:

SECTION 9 - HEALTHY CHILDREN AND YOUTH PROGRAM, GENERAL
INFORMATION,

9.8 LEAD SCREENING AND TREATMENT—HEALTHY CHILDREN AND
YOUTH (HCY)

9.8.B LEAD SCREENING ASSESSMENT

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Maintaining an XRF Analyzer

The XRF analyzer should only be used by Missouri licensed lead inspectors or risk assessors who have received the proper training from the manufacturer, have read the manufacturer's instruction manual in its entirety, and have read the Performance Characteristic Sheet (PCS) for that particular model of analyzer. The XRF analyzer contains a radioactive source, therefore all invasive maintenance and troubleshooting must be performed by the manufacturer only.

The analyzer should be checked at the beginning of each day if possible. An XRF Analyzer Quality Control Logbook should be kept with the analyzer to record blank and control readings. The inspector should also record any special notes (diagnostic fault numbers displayed, etc.), the date, and his/her initials.

The XRF analyzer contains a radioactive isotope, which emits X-rays and gamma radiation. Proper handling of these instruments is required to protect the instrument operator and any other persons in the immediate vicinity during XRF usage. The XRF analyzer should be in the operator's possession at all times and the operator should not defeat or override the safety mechanisms.

The safe operating, direct line-of-fire distance between an XRF instrument and a person during inspections is dependent on the radiation source type, radiation intensity, quantity of radioactive material, and the density of the materials in the direct line of fire. According to the United States Nuclear Regulatory Commission rules and regulations, a radiation dose to an individual in any unrestricted area must not exceed 2 millirems per hour. It is recommended by the HUD guidelines that the instrument operator should conduct inspections in a manner that avoids any direct-line-of-fire testing closer than 10 feet from any person in the vicinity.

The radiation source used by XRF analyzers are regulated by the Missouri Department of Health and Senior Services, Section for Environmental Public Health. As such, the source must be registered with the Department of Health and Senior Services every two years. Statutes require that the source shall have a sealed test every six months to identify any radiation leakage. Any records regarding the radioactive source must be kept on file for a minimum of five (5) years.

For the sealed source utilized by the XRF analyzer, the Missouri Department of Health and Senior Services does not require personnel monitoring, but it is strongly recommended, especially for female inspectors who may be pregnant. These records shall include the individual's full name, date-of-birth, and Social Security Number. Employee records must be kept available for Assessment by the department, during the tenure of employment of an employee, and for a period of five (5) years thereafter.

INSTRUCTIONS FOR SHIPPING THE XRF ANALYZER

When shipping the analyzer, all zero boards, calibrating films, and recharge cords should be included. **Copies of the most recent *Certificate of Sealed Source Test* and current *Certificate of State Registration of Radioactive Material* must be included in the instrument case.**

A source replacement should be scheduled with the manufacturer as early as possible. Immediately before shipping, the manufacturer's service department should be notified that the instrument is being shipped. The time, date, and name of manufacturer representative receiving the notification should be documented on the instrument service log.

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Environmental Management Action Levels and Notification Referrals

Upon notification of a qualifying venous blood lead result from the performing laboratory or health care provider, the Missouri Department of Health and Senior Services/CLPPP will notify the appropriate MDHSS District Office and the LPHA of the County in which the child resides. A qualifying venous blood lead level is equal to or greater than 20 µg/dl, or a second venous blood lead result equal to or greater than 15 µg/dl at least three months after the first.

Environmental Response Timeline

Upon being notified of a child having an EBL that requires an environmental Assessment, the responsible agency shall conduct the Assessment according the timelines indicated in Table 1.

*Table 1
Environmental Response Timelines*

Venous Blood-Pb µg /dl	Timelines
> 70	Immediately
45-69	Within 48 hours
36-44	Within seven calendar days
20-35	Within 10-15 calendar days
15-19 *	Within 30 calendar days

* Perform an EBL Risk Assessment when two blood tests that are at least three months apart measure ≥ 15 µg/dl.

NOTE: *In situations where a child is to be hospitalized for treatment of lead poisoning, the EBL Risk Assessment is to be initiated and processed on an emergency basis.*

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Environmental Management Scheduling an EBL Risk Assessment

I. NOTIFICATION TO PROPERTY OWNER

Notification that a child who lives at or frequents their property has been identified with an elevated blood lead level, has to be given to a property owner and a copy sent to the tenant of the dwelling or particular dwelling unit if property is rental. In order to perform an EBL Risk Assessment, Law 701.304 of the Missouri Department of Health and Senior Services Revised Statutes and Regulations requires that:

- The department, owner of the dwelling, and an adult occupant of a dwelling which is rented or leased have been notified that an occupant of the dwelling or a child six years or fewer years of age who regularly visits the child-occupied facility has been identified with an elevated blood lead level as defined by rule, and
- The Assessment must occur at a reasonable time, and
- The representative of the MDHSS or LPHA presents appropriate credentials to the owner or occupant, and
- Either the dwelling's owner or adult occupant or the child-occupied facility's owner or agent grants consent to enter the premises to conduct an Assessment, or
- If consent is not granted, the representative of the department, local government, or local health department may petition the circuit court for an order to enter the premises and conduct an Assessment after notifying the dwelling's owner or adult occupant in writing of the time and purpose of the inspection or risk assessment at least forty-eight hours in advance. The court shall grant the order upon a showing that an occupant of the dwelling or a child six or fewer years of age who regularly visits the child-occupied facility has been identified as having an elevated blood lead level as defined by rule. (see non-compliant section).
- In conducting such an inspection or risk assessment, a representative of the department, or representative of a unit of local government or health department licensed by the department for this purpose, may remove samples necessary for laboratory analysis in the determination of the presence of a lead-bearing substance or lead hazard in the designated dwelling or child-occupied facility.

A sample letter that may be used to give notification to a property owner/tenant of the child's primary residence at the time of the blood lead test is located on the following page. This letter may be modified to notify the property owner/tenant of secondary locations identified as sites where the child frequents. This letter is designed to meet all of the requirements of 701.304.

Notification that a child who lives at or frequents their property has been identified with an elevated blood lead level and an EBL Risk Assessment is to be conducted, including the date and time, must be provided to:

- the property owner, and
- an adult occupant, if other than the owner.

Permission to enter the premises and conduct the Assessment, however, may be granted by anyone one of the following:

- the dwelling's owner,
- an adult occupant of the residence, or
- the child-occupied facility's owner or agent

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Approval Request To Perform an EBL Risk Assessment at:

Address: _____

Because a child residing at the above address has been determined to have an elevated blood lead level, as owner and/or occupant of the property, you are hereby notified that a licensed lead risk assessor must investigate the premises for lead hazards. This office must perform an Assessment to identify any sources of lead hazards and to provide recommendations that will prevent further exposure of children residing at or frequenting the property in the future. Continued intake of lead into the body causes permanent health effects, such as, brain and nerve damage, hearing loss, anemia, slowed growth, behavioral problems and lowered IQ.

Identification of the lead hazards includes interviewing the child's parent/guardian for potential exposures and an Assessment of the property by a licensed lead risk assessor. This Assessment may require that environmental samples be collected (i.e. paint chips, soil, water). Results from all sampling will be provided to the owner and the occupant of the property, along with a description of hazards found and recommendations of actions to be taken to reduce lead exposure.

Approval for this EBL Risk Assessment and access to the dwelling requires written approval of **either** the owner or resident of the structure. Please provide your consent and signature below so that we may begin this activity as soon as possible to insure the health and well being of children occupying or frequenting the property. Thank you for your cooperation in this matter. We understand the inconveniences that this situation may impose, but trust you will appreciate our assistance in establishing a safer environment for children. If you have any question or concerns please contact _____ at _____.

(Name and Title of Public Health Official) (Telephone number)

If consent is not granted by either party, permitting a public health official, access to the property to perform an Assessment, this case may be turned over to the Attorney General's Office to obtain an administrative search warrant.

I, _____, hereby **DO/DO NOT** grant consent to have an Elevated Blood Lead (EBL) Assessment conducted of the above-mentioned address to determine the presence of lead hazards.

Adult Occupant Signature: _____ Date: _____

Owner Signature: _____ Date: _____

Assessor Risk Assessor: _____ Date: _____

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If both the dwelling owner and adult occupant refuse to grant permission for the representative of the Health Department or local government to perform the Assessment, it is still essential to obtain a signed statement from both parties documenting the following:

- they had received proper notification of the intent to perform an Assessment,
- the purpose of the Assessment had been explained to them,
- if consent is declined, the case will be turned over to the Attorney General's Office,
- the date, and
- declaration of refusal of services.

Scheduling An Appointment

Call child's parent/guardian to schedule appointment to do an EBL Risk Assessment following timelines in Table 1. Explain why an EBL Risk Assessment is being conducted.

If property is rented:

- obtain landlords name,
- address, and
- telephone number.

Inform parent/guardian and/or landlord that an adult occupant or owner of building must be present when an EBL Risk Assessment is done, and set up a time that is convenient for adult occupant and/or landlord. If owner/occupant refuses over the telephone, inform them the case may be turned over to the Attorney General's Office if permission is not granted. (Refer to Law 701.304)

If unable to reach parent/guardian, or if phone number is unavailable, try contacting owner/occupant using the methods below applicable to the area including, but not limited to:

- site visit to family's home,
- check with neighbor,
- check with relatives, and
- leave message at residence on door hanger with your phone number and business card.
- through telephone directory assistance (1411). Explain the situation and provide the direct telephone number of the public health official with whom they need to speak. In an emergency situation (life or death situation) the operator will contact the security office, who, in turn, will contact the family and inform them an emergency situation has occurred and provide them with the number they should call. It is then the family's responsibility to call the number provided.

If all above attempts have no positive results, send a certified letter to the address explaining the need for doing an environmental EBL Risk Assessment.

A confirmation letter may be sent to owner/occupant to confirm phone conversation and date of appointment. A sample letter that may be used to send to owner/occupant is on the following page.

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Confirmation Letter (Sample)

Adult Occupant of Residence and Address of Residence with Hazard

Dear Adult Occupant:

This letter is to confirm our phone conversation of _____ (date) _____ regarding a need to do an EBL Risk Assessment at your residence.

We will be at the above address on _____ (date) at _____ (time) to conduct this Assessment. Please allow for approximately _____ hours for the Assessment.

This office will conduct an Assessment of the property to identify environmental lead hazards that may be causing, or contributing to the cause of, the lead poisoning of at least one child. During this time, it will be important to spend a few minutes at the beginning discussing with the Assessor areas of the home used by the child or children and their habits and behaviors. When sampling and collection of information about the property is completed, it will be necessary to spend some more time with the Assessor discussing any possible lead hazards that were identified and actions necessary to protect children from potential source(s) until the Assessment process is completed.

The standard procedure for the identification of the lead hazards includes interviewing the child's parent/guardian for potential exposures and an Assessment of the property by a Missouri licensed lead risk assessor. This assessment may require that environmental samples be collected (i.e. paint chips, soil, water). Results from all sampling will be provided to the owner and the occupant of the property, along with a description of hazards found and recommendations of actions to be taken to reduce lead exposure.

Please remember, continued intake of lead into the body may cause permanent health effects, such as, brain and nerve damage, hearing loss, anemia, slowed growth, behavioral problems and lowered IQ. Therefore, it is important to make every effort to eliminate the source(s) of lead from the child's environment as quickly as possible. For the best interest of the child or children who have been or are being exposed, it is essential that the child's family, the property owner, the child's medical care provider, and Health Department officials work closely as a team to resolve this problem.

Thank you for your cooperation and if you have any questions or concerns please do not hesitate to contact me at (Health Department, 573-526-4911).

Respectfully

Name, Missouri Licensed Lead Risk Assessor

C: Home Owner (If property is rented), Health Department file

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Environmental Management Conducting an EBL Risk Assessment

An EBL Risk Assessment should be performed during a visit to the child's current dwelling unit. First priority should be given to the child's primary residence. The primary residence is the house in which the child resides the majority of the time. The parents or guardians should be questioned regarding all possible lead sources and risk factors. An EBL Risk Assessment of secondary addresses can be made at the discretion of the lead risk assessor if sources are not identified at the primary residence or if the child spends a significant amount of time at a secondary residence. Secondary addresses may include, but are not limited to, a day care, the residence of divorced or separated parents with joint custody or visitation arrangements, a relative's home, or a friend's home. Guidelines from HUD for an EBL Risk Assessment recommend an Assessment at a secondary address if a child spends three hours a day for two days per week; or a combined six hours per week; or a combined annual 60 hours at a specific residence other than the primary residence. Medicaid will not reimburse Assessors for assessment activities conducted at a secondary residence.

The outline in Table 2 is a guideline to follow when doing an EBL Risk Assessment on a house.

Go to address	No such address	<ul style="list-style-type: none"> a. Attempt to contact family to determine if an error had been made in writing address. b. Check with post office to identify possible transcription error. c. Cross-reference telephone number with directory assistance. d. Leave a notice on the client/patient's chart with party ordering blood lead testing to contact the health Assessor upon next office visit. 	Delete incorrect address on Assessment records. Open Assessment for correct address when information is obtained.
Go to address	Never lived there, or vacant w/o forwarding address.	<ul style="list-style-type: none"> a. Check w/ neighbors and listed relatives. b. Verify address w/ your office. c. Check w/ doctor, DFS, WIC, other provider types and local authority, etc. d. Send a letter w/ address correction request. 	If unable to locate after all attempts have been exhausted applicable for your area, close address of EBL Risk Assessment.
Go to address	Client has moved	No initial EBL Risk Assessment started	Close address of EBL Risk Assessment

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Table 2

Go to address	Client has moved to this address less than three months ago	Do initial EBL Risk Assessment to make sure child has not moved into a residence that will cause continued exposure to an environmental lead hazard.	Follow house to completion. Close address if no hazards found. If hazards found, requires remediation to be completed.
Go to address	Do initial EBL Risk Assessment	Client moves	Follow house to completion. Close address when remediation has been completed. If no remediation is done, written documentation from property owner requires that house will be taken off the rental market until remediation is completed.
Go to address	Do initial EBL Risk Assessment	No lead hazards found	Close address of EBL Risk Assessment.
Go to address	Do initial EBL Risk Assessment	Lead hazards found – client stays	Follow house to completion of remediation. Close the address when completed.
Go to address	Do initial EBL Risk Assessment	Property ownership changes	Provide information for new owner. Start new time frames. New violation letter to be sent to new owner. Follow house to completion. Close address when remediation has been completed or when property is removed from rental market.

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Environmental Management

The Visual Assessment and Areas to Investigate

Any area of the premises the client has access to should be visually investigated. All accessible surfaces with deteriorated paint, friction surfaces, and chewable surfaces should be suspected as potential sources of lead exposure. However, lead hazards are not limited to these sources. Possible sources of lead in a child's environment often include at least one of the following:

Note: For simplicity, this section of the manual uses the term “paint” synonymously with the term “surface coatings” as defined by 19 CSR 30-70.600 and with the term “lead bearing substance” as defined by Revised Statute 701.300(18)(a). Reference to “paint” includes (but may not be limited to) surface coatings such as stains, varnishes, lacquers, and shellacs.

- paint on: walls, floors, and ceilings in deteriorated condition
- woodwork including windows, doors, stairwell components, and baseboards, etc., if it is deteriorated and/or on an impact, friction, or chewable surface
- other surfaces which show evidence of deteriorated paint, friction surfaces, or chewable surfaces such as cabinets, furniture, toys, knick-knacks, antics, or various other structures or surfaces with which the child has regular contact
- exterior of house including porches, fences, and other exterior buildings
- bare soil in play areas, gardens, other areas used by the EBL child, and pets, especially in areas close in proximity to structures that have been painted with lead-based paint, that might have been contaminated by leaded gasoline from parked cars, or are in areas known to be near previous industrial processes which may have caused lead contamination (i.e. lead mining or processing, auto repair shops, etc.), driveway and landscaping chat, any item accessible to the child made of pewter, the lead risk assessor should look for other sources of lead in the residential environment. Inquire about other objects such as:

Jewelry	Furniture	Painted swing sets
Ceramic ware	Food containers	Miniblinds
Progressive hair dye	Crayons or chalk	Stained glass
Porcelain glazed ceramic bathtubs and sinks		Belt buckles

- pet exposure from pets being outside where lead hazards are a possibility and bringing contaminated dust into the home,
- occupational exposure of an adult residing or frequenting the home and take-home dust contamination of the home and vehicle,
- hobbies such as:
 - fishing (possible exposure from sinkers or contaminated fish meat,
 - hunting (possible exposure from reloading, contaminated game meats, target practice areas, or used bullets or shot), gardening in potentially contaminated areas (up-take of lead from the soil is a possibility, however dust contamination of soft vegetables that are not peeled is a more serious problem), pool cue chalk, and
- any other sources identified by the Consumer Product Safety Commission or other agency.

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A notation as to the structural condition of the dwelling unit and general maintenance should be included on the EBL Risk Assessment Report. General maintenance should also include mention of dust, residue, or dirt accumulation on environmental surfaces accessible to children.

After concluding the visual assessment, and due consideration has been given to the information gathered by the Home Lead Assessment Questionnaire (see Section 4.7 of this Manual), the Assessor should establish a sampling plan. The sampling plan consists of where environmental samples should be collected, how many should be collected, and what type of samples to collect.

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Environmental Management The EBL Risk Assessment Report

The EBL Risk Assessment Report is designed to meet all of the requirements of 19 CSR 30-70.620 Work Practice Standards for a Lead Risk Assessment, (8) Elevated Blood Lead (EBL) Assessment Risk Assessments. The EBL Risk Assessment Report is designed to meet the following:

- Rules of Department of Health and Senior Services, Division 30 – Division of Health Standards and Licensure, Chapter 70 – Lead Abatement and Assessment Licensing, Training Accreditation,
- Missouri Department of Health and Senior Services, Childhood Lead Poisoning Prevention Program rules and regulations,
- Missouri Department of Health and Senior Services, Childhood Lead Poisoning Prevention Program Contract Scope of Work requirements,
- STELLAR data entry requirements for epidemiological and demographical surveillance, and
- Provide documentation of lead hazards found on the premises and provide information to the parents and property owner of necessary lead hazard reduction and control actions.

In the event legal action is taken with the EBL case, it is essential to have complete and thorough documentation of the all events related to the Assessment. These events include attempts to contact occupant and property owner, communications and meetings with the occupant and property owner, condition of the property, all findings of the Assessment, recommendations for interim controls and abatement methods, follow-up observations of interim controls and abatement in progress, and Assessment closure. Completing all sections of the EBL Risk Assessment form correctly provides the Assessor with a structured format for this documentation.

Home Lead Assessment Questionnaire

The licensed lead inspector, in coordination with the nurse where applicable, will obtain information from the child's parent/guardian by completing the questionnaire on the following pages (Figure 2). The information collected on this form will aid in determining housing conditions, hobbies, and habits that contribute to lead hazard exposure.

On-Site Preliminary Lead Assessment Report:

The On-Site Preliminary Lead Assessment Report is a summary of identified potential lead hazards on the premises and respective methods for hazard control and/or reduction. This report must be completed and signed by both the risk assessor and responsible party (property owner or an adult occupant) present during the Assessment. Although some of the information on this form is repetitive on the EBL Risk Assessment Report, it is necessary to complete all boxes on form in order to:

- Provide documentation the responsible party was present during the Assessment and received information regarding the location of potential hazards and required interim control methods, and a copy also sent to MDHSS, CLPPP.
- Provide a written copy of findings and requirements for the responsible party until the EBL Risk Assessment Report is finalized. Typically, the EBL Risk Assessment report can not be finished until laboratory results have been reported, which may take several days.

In order to document that the responsible party understands the information on the form, and that the form will be followed by the completed EBL Risk Assessment form, which may require alternative or additional hazard control actions based on laboratory findings, it is essential that his/her dated signature is obtained. . The original, signed, and dated copy of the form should be given to the occupant before leaving the premises.

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Preliminary recommendations for interim control strategies should be made on this form. These recommendations will include potential hazards and interim methods of preventing continued exposure to lead. The risk assessor should also give the occupant a copy of the EPA pamphlet titled, *Protect Your Family from Lead in Your Home*, as well as other any other available public health education materials the risk assessor deems pertinent to the family. The risk assessor should stress to the occupant **temporary** measures and precautions must be taken to reduce the hazards and prevent continued exposure to lead hazards.

Because lead-contaminated dust may not be visible, dust wipe samples of floors, window troughs, and windowsills should be taken. Even if a structural source or lead dust is not apparent, lead dust may be accumulating due to a source unrelated to any building components and the source may not be present at the time of the Assessment. Until the surface dust is confirmed by an analytical method not to contain a lead concentration exceeding the established component threshold, cleaning with a general household detergent should always be included as an interim control method.

The appropriate Worksheet(s) (pages 4-7), based on potential hazards identified, for Home Occupants and Property Owners should be provided with the On-Site Preliminary Lead Assessment Report.

NOTE: *On-Site Preliminary Lead Assessment Report is to be forwarded to MDHSS/CLPPP program within 10 days after the start of the property assessment.*

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Dust Removal and Control Worksheet
For Home Occupants and Property Owners

1. Correct any known or suspected lead-based paint hazards or behaviors that may be introducing lead-contaminated dust into the home environment, such as hobbies, occupational exposure, pets, remodeling and renovation, etc.
2. Visually inspect other dust traps, such as radiators and floor grates. If visible dust is found, the component should be cleaned. Vent filters or cheesecloth may be used to trap dust in vents until ducts can be cleaned.
3. Discuss with occupants the possibility of lead-contaminated dust in or on drapes, carpets, and upholstered furniture. These surfaces should be steamed cleaned if possible without damaging the fabric. If dust level is heavily embedded, they should consider disposal of the items. If contaminated carpet is to be removed, moisten the surface to reduce the amount of air-borne dust.
4. If a HEPA filter vacuum cleaner is available, all surfaces should first be vacuumed thoroughly. A vacuum cleaner without a HEPA filter is likely to redistribute lead-contaminated dust throughout the home environment and should not be used. For area rugs HEPA vacuum both top and bottom sides at a rate of no more than 10 square feet per minute. If the floor beneath the area rug is uncarpeted, also HEPA vacuum the floor and mop thoroughly with a general household detergent. For wall-to-wall carpeting that cannot be folded over to expose the back, HEPA vacuum at a rate of no more than 10 square feet per 2 minutes, followed by another pass in a perpendicular direction to the first at a rate of no more than 10 square feet per 4 minutes. Upholstered furniture should be HEPA vacuumed over all surfaces 3 – 5 times.
5. Hard surfaces should then be cleaned with general household detergent and paper towels. All wash and rinse water should be contained and disposed of down the toilet. Do not dispose of wash and rinse water in the yard due to contamination of the soil.
6. After cleaning, perform a final rinse with clean water and unused paper towels.
7. The risk assessor should collect dust wipe samples afterward to ensure lead concentrations in the dust have been reduced below the action threshold.

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Paint Film Stabilization Worksheet
For Home Occupants and Property Owners

1. Eliminate any exterior leaks in the building, plumbing leaks, moisture accumulation problems related to improper ventilation, condensation drips from air conditioners, defective or missing glass in windows, gutters, downspouts, roofing, etc. Do not attempt to control a lead hazard with paint film stabilization on a deteriorated substrate. If the substrate is damaged, an abatement method will be necessary. Moisture will cause the fresh paint coat to fail prematurely, re-exposing the lead hazard.
2. Plastic sheeting should be used to capture falling paint chips and dust. Plastic should extend from the base of the wall out far enough to catch all falling debris. The higher the work site extends above the ground, the further the plastic will need to extend.
3. Occupants should never be present in the work area.
4. Loose paint should be removed by hand treatments only, such as wet scrapping or wet sanding. Do not remove loose exterior paint if wind conditions make it difficult to contain the dust and chips.
5. After removing loose paint, the surface to be painted should be HEPA vacuumed and wet washed with a general household detergent. Disposable towels or sponges should be used.
6. To increase the lifetime of the paint, a primer should be used initially. Primers are designed to adhere tightly to the old paint while leaving a rough, bondable surface.
7. Apply paint to the thickness recommended by the manufacturer.
8. When the job is finished and plastic has been removed, the work area should be cleaned according to the method of lead-contaminated dust removal.
9. The Assessor should collect dust wipe samples afterward to ensure lead concentrations in the dust have been reduced below the action threshold.

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Lead-bearing Friction and Impact Surface Interim Control
Worksheet For Home Occupants and Property Owners

1. Eliminate any exterior leaks in the building, plumbing leaks, moisture accumulation problems related to improper ventilation, condensation drips from air conditioners, defective or missing glass in windows, gutters, downspouts, roofing, etc. Do not attempt to control a lead hazard with paint film stabilization on a deteriorated substrate. If the substrate is damaged, an abatement method will be necessary. Moisture will cause the fresh paint coat to fail prematurely, re-exposing the lead hazard.
2. Plastic sheeting should be used to capture falling paint chips and dust. Plastic should extend from the base of the wall out far enough to catch all falling debris. The higher the work site extends above the ground, the further the plastic will need to extend.
3. Occupants should never be present in the work area.
4. Loose paint should be removed by hand treatments only, such as wet scrapping or wet sanding.
5. After removing loose paint, the surface to be painted should be HEPA vacuumed and wet washed with a general household detergent. Disposable towels or sponges should be used.
6. For windows cover with plastic sheeting.
7. For abraded outside wall corners, install new plastic or wood corner bead.
8. When the job is finished and plastic has been removed, the work area should be cleaned according to the method of lead-contaminated dust removal.
9. The Assessor should collect dust wipe samples afterward to ensure lead concentrations in the dust have been reduced below the action threshold.

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Lead-Contaminated Soil Interim Control Worksheet
For Home Occupants and Property Owners

1. Depending on the level of contamination, change use patterns of play areas, high traffic areas, pet areas, gardens, etc. Usage may be controlled by fencing or warning signage.
2. Select a surface covering. Covering options include, but are not limited to:

grass (as seed or sod)	bark	gravel
ground covers	mulch	
artificial turf	shrubbery	
3. A shop vacuum may be use to cleanup visible lead-based paint chips and dust on the soil surface.
4. Control water erosion by proper grading and drainage channels. Control wind erosion by periodic watering, windbreaks, and usage controls.
5. Moisten and turn over contaminated soil and work in with uncontaminated soil underneath. This may be done with a shovel or tiller.
6. Plant ground cover, sod, etc. or apply bark, mulch, or gravel 6 – 12 inches deep.
7. Water plants regularly after planting.
8. Blood lead levels often increase during the spring and summer as the result of exposure to contaminated soil. If the area is determined to be hazardous during the fall or winter, restricted usage or gravel, mulch, or bark cover should be considered as opposed to grass, sod, ground covers, or shrubbery.

XRF Analyzer Calibration Check

If an XRF analyzer is used to obtain environmental sample results in the course of the Assessment, the instrument must be calibrated prior to use and as directed by the manufacturer. Calibration information must be documented on the following form, or a similar form, and included with the final Assessment report for the report to be in compliance with 19 CSR 30-70.620. A sample of this form is on the following page. (Exhibit B)

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Exhibit B

XRF Quality Assurance/Instrument Performance Form

**MISSOURI DEPARTMENT OF HEALTH
AND SENIOR SERVICES
ENVIRONMENTAL PUBLIC HEALTH
CALIBRATION CHECK**

PAGE ____ OF ____

CLIENT DCN

JOB NO.

XRF Analyzer Calibration Check

Calibration checks should be made at the beginning of each job, every four hours during continuous operation, at the end of every job, and each time the instrument is turned on. If specified by the manufacturer, the XRF analyzer should be calibrated if there is a significant change in temperature in work environments as soon as the temperature of the instrument has had an opportunity to adjust.

Zero reading: _____ Acceptable Range: **0.0** +/- _____

Acceptable Control Range: _____

Reason for Check	Zero Reading	Control Reading	Accept or Reject	Corrective Action Number

Reason for Check

Corrective Action Number

I.C. = Initial Calibration

Temp = Work Environment
Temperature Change

4/Hour = Subsequent four hour
check

T.O. = Resumed Assessment After
Instrument was Turned Off

F.C. = Final Calibration

1. Cleaned Probe Face

2. Cleaned Zero Block/ Calibration
Film

3. Manual Zero/ calibration

4. Consulted Manufacturer

5. Sent instrument to
Manufacturer for service

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EBL Risk Assessment Report – Part A.1

Missouri Law, in accordance with EPA requirements for program accreditation, requires the information required by Part A.1. State Regulation 19 CSR 30-70.620 sets forth Work Practice Standards for a Lead Risk Assessment. Requirements for an EBL Risk Assessment are found in part (8) of this section of the regulations. Reporting and documentation requirements are listed in part (11). For an Assessment report to meet all requirements to comply with 19 CSR 30-70.620, all boxes on the EBL Risk Assessment Report- Part A.1 must be completed. All EBL Risk Assessment reports submitted to the MDHSS/CLPPP must comply with 19 CSR 30-70. The last segment on this report asks for the next reassessment date. State Regulation 19 CSR 30-70.620(11)(s) requires a recommended maintenance and monitoring schedule for interim control methods or if encapsulate or enclosure lead abatement methods are used. The table on the following page provides guidance for reevaluation frequencies for various actions. This table is from the EPA Lead-based Paint Risk Assessment Model Curriculum.

The Assessment report includes information, testing results, recommendations, and requirements for only the dwelling or dwelling unit specified in Part A of the Assessment report. Although multiple EBL cases may be present concurrently in a multifamily housing complex, each unit housing a child meeting the EBL criteria is to be considered independently.

EBL Risk Assessment Report – Part A.2

The floor plan of the address is optional. Part A.2 may be used to diagram the house floor plan, individual room floor plans on multiple sheets, or both. It would be valuable for future reference to have sampling locations indicated on the floor plan. The floor plan may also be used to diagram lawn areas, indicating samples taken from bare soil locations, or porches, patios, outbuildings, etc.

The directional arrow should be used for each diagram to avoid confusion during future visits, consultations, and reAssessments. Although north, south, east, and west are standard and usually the clearly evident, other designations may be used, as long as they may be clearly understood by a person other than the Assessor filing the Assessment report.

EBL Risk Assessment Report – Part B

The table in this part is designed to include all required information regarding each sample collected and reported to be in compliance with 19 CSR 30-70.620(10) and (11). There should be only one sample entry per line. Each sheet should include only information for samples collected on the date indicated at the top of the form. Use as many sheets of this part as necessary. The final column for time of sample collection is optional and is not required. The units of measurement for each sample value should be converted, if necessary, to be consistent with the units for the threshold levels indicated at the bottom of the sheet.

For the purpose of data collection, risk analysis, and surveillance, it is essential to capture address Assessment information into a database. Therefore, it is important for terminology to be consistent. Please use the following terms to identify rooms and building components on the EBL Risk Assessment report.

EBL Risk Assessment Report – Part B (cont.)

B	Bath	TRS	Transom Jamb
BA	Basement	UW	Upper Wall
BL	Balcony	W	Wall
BR	Bedroom	WC	Window Casing/Apron
D	Dining room	WCD	Wall Cabinet Door
H	Hall	WCT	Window Cabinet
K	Kitchen	WIS	Window Interior Sill
L	Lobby	WJ	Window Jamb/Track
LR	Living Room	WS	Window Sash
O	Other Room	WW	Window Well/Exterior Sill
PA	Pantry	E	Building Exterior
S	Stairs	EP	Exterior Paint Testing Location
B	Baluster	G	Garage
BB	Baseboard	OB	Outbuilding
BC	Base Cabinet	P	Playground
BCD	Base Cabinet Door	ED	Exterior Door
CL	Ceiling	EG	Gutters/Downspouts
CM	Crown Molding	EP	Exterior Post/Column
CR	Chair rail	ERL	Exterior Railings
D	Interior Door	ESO	Exterior Soffit
DC	Door Casing	ETR	Exterior Trim
DJ	Door Jamb	EW	Exterior Wall/Siding
DT	Door Threshold	EWC	Exterior Window Casing
F	Floor	EWS	Exterior Window Sash
FP	Fireplace	FA	Fascia
HR	Hand Rail	FD	Exterior Foundation
LW	Lower Wall	FE	Fire Escape
M	Mantel	FN	Fence
NP	Newel Post	PC	Porch Ceiling
O	Other	PFR	Porch Floor
PF1	Painted Furniture	PR	Painted Roof
R	Stair Riser	WW	Window Well/Window Sill
RD	Radiator	A1	Child's Play Area
S	Shelf	X	Soil Sampling Location
SK	Skylight	HO	Horses on Springs
SO	Soffit/Bulkhead	JU	Jungle Gym
SP	Shelf Support	ME	Merry-Go-Round
SR	Stair Railings	SA	Sandbox
SS	Stair Skirt/Stringer	SL	Slides
T	Stair Tread	SW	Swings
TR	Transom Sash		

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EBL Risk Assessment Report – Parts C.1, C.2 and C.3 General Information

Confirmed sources of lead hazards on the premises are addressed on this section of the form. For each hazard, interim control methods and/or abatement options for lead hazard reduction and the differences of effectiveness should be discussed. A listing of the types of temporary lead hazard reductions and permanent lead hazard reduction options of lead abatement methods, dangers, and safety precautions can be found in this section. The lead risk assessor, along with the home-owner/occupant, must establish a date in which all lead hazard reduction activities must be completed. The timeframes include, but not limited to, immediate, 30 days, 60 days, or 90 days. All interim methods should be met immediately or within 30 days. No timeframe for any permanent lead hazard reduction is to exceed six months without an approved extension of the completion date for the work plan. If extenuating circumstances prevent the owner from completing the lead hazard reduction activities within the time period, an extension may be given. Several factors may be considered when determining an adequate time period including, but not limited to the following:

- extent of required work;
- weather conditions;
- geographic area; and
- financial burden.

Following is a guide to be used when determining what methods and actions should be treated as immediate, 30 days, 60 days, 90 days, or longer timeframes, that includes but is not limited to:

Immediate	<p>a. Barriers to Lead Source:</p> <ul style="list-style-type: none"> • Moving of furniture to keep child from getting close to source of lead poisoning. • Restricting children's access to certain rooms. If carpeting is suspected to be contaminated, a playpen may be used to restrict the child's access to the floor, if the child is of appropriate age. <p>b. Removal of Lead Sources:</p> <ul style="list-style-type: none"> • The following list of items that should be removed immediately include but are not limited to; lead wick candles, toys that contain lead, jewelry that contains lead, clothing or shoes that contains lead from occupational hazards, etc. • Cleaning and removal of mini blinds. <p>c. Dust removal and control:</p> <ul style="list-style-type: none"> • Specialized cleaning that includes wet mopping uncarpeted floors, wiping down window frames and sills with water and detergent. <p>d. Water Lead Source:</p> <ul style="list-style-type: none"> • Use bottled water for drinking and cooking.
30 days	<p>a. Barriers to Lead Source:</p> <ul style="list-style-type: none"> • Installing obstruction to keep child from getting close to source of lead poisoning. <p>b. Soil interim controls:</p> <ul style="list-style-type: none"> • Impermanent ground covers such as grass seed or sod (depending on time of year), mulch, shrubbery or gravel may be placed over base soil to help prevent
30 days	

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	<p>exposure to lead contaminated soil.</p> <ul style="list-style-type: none"> Land use controls including, but not limited to fences, warning signs or thorny bushes. <p>c. Dust removal and control:</p> <ul style="list-style-type: none"> Vacuuming with a HEPA filter equipped vacuum. Cleaning surfaces to reduce levels of leaded dust to acceptable levels, including cleaning carpets, if they are contaminated. <p>d. Lead-based paint stabilization:</p> <ul style="list-style-type: none"> Using paint to stabilize areas on a component where lead-based paint is showing signs of deterioration such as peeling, chalking, or alligating.
60, 90, or 120 days, not to exceed six months unless otherwise specified in the Work Plan to accommodate Extenuating circumstances	<p>a. Soil removal or covering:</p> <ul style="list-style-type: none"> Soil Removal and Replacement followed by offsite or onsite disposal. Soil Cultivation (tilling) Soil cleaning and replacement Paving with concrete or asphalt <p>b. Building Component Replacement</p> <ul style="list-style-type: none"> Removal of doors, windows, trim and other building items that are hazardous and replacing with new lead-free components. <p>c. Enclosure</p> <ul style="list-style-type: none"> Installation of a rigid, durable barrier that is mechanically attached to a building component with all edges and seams sealed with caulk or other sealant. <p>d. Paint Removal</p> <ul style="list-style-type: none"> Separation of the paint from the substrate using heat guns, chemicals, or certain contained abrasive measures, either onsite or offsite.

An effort to check progress should be made within two to three weeks. At this time the owner should be able to show evidence they are working on measures, such as hiring a licensed abatement worker to do the abatement or receipts for supplies purchased to do the work.

For details of interim lead hazard reduction methods and methods of abatement, see the appropriate subsections of this section of this manual.

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EBL Risk Assessment Report – Part C.1

This form summarizes lead hazards found associated with either dust or water. The removal of dust or surface residue unto itself is an interim control method only and does not require a licensed lead abatement worker. Although cleaning the contaminated surfaces is very important, the primary concern should be the original source of lead contamination. If the source of the dust is a structural component, interim control methods and/or lead abatement methods will be necessary to eliminate the dust hazard. Sources unrelated to structural components may be shoes, hobbies, occupations, pets, etc. The elimination of these sources requires education and awareness of the problem by all family members. In this instance, it is especially important for the Assessor to work closely with the case management nurse.

If the drinking and cooking water is contaminated with lead, it is important to determine the contamination source. The source of lead contamination may be the faucet, household plumbing, water main, or contamination of the reservoir itself.

If the lead concentration in water is equal to or greater than 15 ppb, and the water supply is determined to be the source of contamination, the family should use only bottled water for drinking and cooking, or consider installing a purifier or filter.

The removal of lead pipes and lead-containing fixtures does not constitute “abatement” because neither the pipes nor the fixtures meet the definition of a “lead hazard”. As defined in sections 701.300-701.338 of the Missouri Department of Health and Senior Services Revised Statutes and Regulations, a “lead hazard” results from deteriorated lead-bearing substances or lead-bearing substances arising from accessible, friction or impact surfaces. Lead contamination in pipes and fixtures results neither from deterioration nor from qualities of accessible, friction or impact surfaces.

Installation of a water softener or filter would be an interim control as opposed to abatement. This is because installation of water softener or filter does not permanently eliminate the lead hazard since it does not “cure” the source of the problem that is the water supply; rather, it temporarily reduces human exposure to the hazard.

EBL Risk Assessment Report - Part C.2

This form summarizes lead hazards found associated with lead-based paint. Lead-based paint is considered to be hazardous if it is in deteriorated condition, or if it is coating a friction, impact, or chewable surface. It is also required by 19 CSR 30-70.620 for the report to include a description of the severity of the identified lead-bearing substance hazard. Use additional sheets of Part C.2 as needed.

EBL Risk Assessment Report – Part C.3

This form summarizes lead hazards found associated with lead in soil (the term “bare soil area” also includes the sand in sandboxes as defined by 19 CSR 30-70.520). The severity of the lead hazard associated with soil is determined by a combination of factors. These factors include concentration of lead, extent of bare soil area (as defined by 19 CSR 30-70.520, a bare soil is a continuous three (3) square foot area or more of soil that has no or little plant growth or other covering), and use of area.

For interim lead hazard reduction methods and methods of abatement, see the appropriate sections of this chapter. Use additional sheets of Part C.3 as needed.

EBL Risk Assessment Report – Part C4

This form is to be used when lead hazards other than soil, paint, dust and water are found. Below are examples of lead hazards that could be included, but not limited to:

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Occupational Sources (Pipe fitters, brass/copper foundry, lead miners, lead smelters and refiners, auto repairers, glass manufacturers, shipbuilders, printers, plastic manufacturers, steel welders and cutters, construction workers, bridge reconstruction workers, rubber products manufacturers, gas station attendants, battery manufacturers, chemical and chemical preparation manufacturers, industrial machinery and equipment operators)

Hobbies (Glazed pottery making, target shooting at firing ranges, reloading cartridges, lead soldering, preparing lead shot, fishing sinkers, bullets, stained-glass making, car or boat repair, furniture refinishing, casting lead figures)

Substance Use (Folk remedies, health foods, cosmetics, moonshine whiskey, gasoline huffing)

Environmental (Miniblinds, Crayons, lead crystal, ceramic-ware/pottery, candles)

Use additional sheets of Part C.4 as needed.

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Subsection 5.6 The EBL Risk Assessment Report

Revised

EBL Risk Assessment Report

Missouri Department of Health and Senior
Services

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Environmental Public Health

EBL RISK ASSESSMENT REPORT – PART A.1

CLIENT DCN

JOB NO.

LEAD HAZARD IDENTIFICATION		
ADDRESS (STREET)(LOT OR APARTMENT)		(CITY) (ZIP CODE)
COUNTY	PHONE	
OWNER NAME		DAY TIME PHONE
ADDRESS (IF DIFFERENT) (STREET)(LOT OR APARTMENT)		(CITY) (ZIP CODE)
YEAR OF CONSTRUCTION: _____ (if unknown, obtain date from county assessor's office)		ASSESSOR'S NAME (PLEASE PRINT)
<input type="checkbox"/> INITIAL ASSESSMENT <input type="checkbox"/> RE-ASSESSMENT		ASSESSOR'S SIGNATURE
DATE STARTED: _____ DATE COMPLETED: _____		ASSESSOR'S MISSOURI RISK ASSESSOR LICENSE NUMBER AND DATE OF EXPIRATION:
NAME, ADDRESS, AND TELEPHONE NUMBER OF AGENCY OR FIRM EMPLOYING ASSESSOR: _____ _____		NAME, ADDRESS, PHONE AND FAX NUMBERS OF NNLAP RECOGNIZED LAB PERFORMING SAMPLE ANALYSIS. _____ _____
XRF ANALYZER MANUFACTURER (IF USED)	XRF ANALYZER MODEL	XRF ANALYZER SERIAL NUMBER
<input type="checkbox"/> INCONCLUSIVE RESULTS WILL BE TREATED AS POSITIVE RESULTS PER CONSENT OF PROPERTY OWNER		
<input type="checkbox"/> INCONCLUSIVE RESULTS WILL BE CONFIRMED BY LABORATORY METHODS		
LEAD PAINT HAZARD RESULTS (Circle One) Interior Exterior Both None LEAD HAZARD(S) OTHER THAN LEAD PAINT (Circle One) Yes No Comment : _____ INDUSTRIAL HAZARDS WITHIN ONE MILE (Circle One) Yes No Unknown	DWELLING TYPE: (Circle One) Single Family Multi Family Day Care School	OWNERSHIP: (Circle One) Owner Occupied Public Housing – Rental Private - Rental Section 8 - Rental
IF INTERIM CONTROLS OR ENCAPSULATION OR ENCLOSURE ABATEMENT METHODS ARE USED TO CONTROL LEAD HAZARDS, THE MAINTENANCE OF THE CONTROL MEASURE(S) MUST BE MONITORED. DATE SUBSEQUENT REASSESSMENT IS SCHEDULED TO BE COMPLETED BY: _____ IF A REASSESSMENT FINDS THE SELECTED METHODS ARE NOT EFFECTIVELY CONTROLLING THE LEAD HAZARD (S), ALTERNATIVE OR ADDITIONAL STRATEGIES MAY BE REQUIRED AT THAT TIME.		

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Subsection 5.6 The EBL Risk Assessment Report

Revised

Missouri Department of Health and Senior Services

Environmental Public Health

**EBL ASSESSMENT REPORT –
PART A.2**

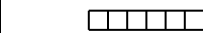
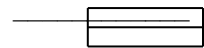
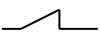
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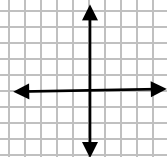
JOB NO.

ASSESSMENT DATE:

ASSESSOR

KEYWall Door Window **FLOOR PLAN:**

Notes:



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Subsection 5.6 The EBL Risk Assessment Report

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PAGE _____ OF _____

ASSESSMENT DATE:	
------------------	--

DATE:

[illegible]

Paint (Lab Analysis)	0.5% by weight or 5,000 ppm (□g/g)	Paint (XRF)	1.0 mg/cm²
Dust Wipe (Floor)	50 ug/ft²	Water	15 ppb (µg/dl)
Dust Wipe (Window Sill)	250 ug/ft²	Soil (Residential, not accessible to child)	2,000 ppm
Dust Wipe (Window Trough)	800 ug/ft²	Soil (Residential, Accessible to Child – Play Area or Traffic Area)	400 ppm

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Missouri Department of Health and Senior Services
Environmental Public Health
EBL ASSESSMENT REPORT –
PART C.1
Report of Lead in Dust and/or Water

PAGE _____ OF _____

JOB NO.	ASSESSMENT START DATE:
ASSESSOR	
Lead-Contaminated Dust	Date Due for Completion:
AREAS: 	
Severity at time of Assessment: <input type="checkbox"/> Large quantities of surface dust containing low concentration of lead <input type="checkbox"/> Small quantities of surface dust containing high concentrations of lead <input type="checkbox"/> Large quantities of surface dust containing high concentrations of lead	
Lead Hazard Reduction Methods for Dust Cleaning and Control: 	
Lead Hazard Reduction Methods for Drinking Water, Water Fixtures, and Plumbing	Date Due for Completion:
Temporary Controls (Additional water sampling may be needed to determine which control method is effective in reducing the concentration of lead in water below 15 ppb): <input type="checkbox"/> Use only bottled water from a commercial source for drinking, cooking, and ice, especially for children. <input type="checkbox"/> Allow water to run for several minutes before using if the tap has not been used for more than a few hours <input type="checkbox"/> Do not use water from tap to wash ready-to-eat foods. <input type="checkbox"/> Use only cold water from kitchen sink tap. <input type="checkbox"/> Do not allow children to place objects (toys, wash clothes, etc.) in their mouths while bathing or drink bath/shower water. <input type="checkbox"/> If the same water source has been used to irrigate a garden, the soil from the garden area should be tested. Avoid watering garden from this source in the future until lead source has been identified and corrected. Other Control Methods: <input type="checkbox"/> Identify lead pipe or pipe with solders and replace. <input type="checkbox"/> If initial draw is high, replace brass fixtures used for drinking water. <input type="checkbox"/> If the water source itself is contaminated, an approved water softener or filter may be recommended. <input type="checkbox"/> If water source itself is contaminated from a public supply, contact local authority through proper channels.	

Section 5.0 Environmental Management	Page 1 of 2
Subsection 5.7 Reporting Risk Assessments Results to the Occupant/Property Owner	Revised

**Environmental Management
Reporting Risk Assessment results to the Occupant/Property Owner**

Within 20 working days of receipt of the environmental sample results, the risk assessor will provide a written EBL Risk Assessment report to the adult occupant and property owner through return receipt mail. When reporting EBL Risk Assessment results and required lead hazard reduction activities, the following documents are required to be completed: Cover Letter, and EBL Risk Assessment Report Parts A.1 and 2, and B, and C.1, 2, and 3.

Cover Letter

The cover letter (see example on following page) of an EBL Risk Assessment report should be used to reference the statutory requirements of the owner. A specific date should be provided in which the lead assessor will make a contact attempt for consultation on methods of lead hazard reduction. This consultation contact attempt should occur within three to five days of receiving of the lead assessment report. Emphasis should be made on a timeframe for completing the lead hazard reduction as indicated on an EBL Risk Assessment report.

The Federal Residential Lead-Based Paint Hazard Reduction Act of 1992, 42 U.S.C. 4852d, requires sellers and landlords of residential housing built before 1978, to disclose all available records or reports concerning lead-based paint hazards, including the test results contained in this report, to purchasers and tenants at the time of sale or lease or lease renewal. Sample cover letter is included on the next page.

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Subsection 5.7 Reporting Risk Assessments Results to the Occupant/Property Owner	Revised

Cover Letter (Sample) To Accompany Risk Assessment Report For Property Owner

<p>Date</p> <p>[Property owner's Name] [Mailing Address]</p> <p>Dear Mr./Mrs. _____:</p> <p>The following Assessment report contains information collected during an Elevated Blood Lead (EBL) Assessment performed at the above address in accordance with Missouri Revised Statutes 701.300-701.336 and Code of State Regulations, Rules of Missouri Department of Health and Senior Services. The Assessment was performed at [street address, city, State]. Please read the following report carefully and completely.</p> <p>Please contact me as soon as possible at [telephone number] to schedule a Lead Hazard Reduction Consultation. This will also provide me an opportunity to answer any general questions you may have regarding the nature of lead hazards found on the premises and your responsibilities for hazard control and/or elimination. The purpose of the consultation is to give you and I an opportunity to discuss the following:</p> <ul style="list-style-type: none"> • Why an EBL Risk Assessment was conducted at the dwelling, • The adverse health effects of lead, • The location(s) of lead hazards found in or about the dwelling, • The most desirable and economical means to reduce the hazard while ensuring the health and safety of the residents, workers, and neighbors, • Confirm timeframes for completion of all required activities, and • Any circumstances that will affect or delay lead hazard reduction activities. <p>Following the consultation, I will provide you with a written work plan established and agreed upon at the time of the consultation. If you have not responded to these requests within [number] days, we will be obligated as our client's advocate to pursue legal action.</p> <p>Also, please be aware, the Federal Residential Lead-Based Paint Hazard Reduction Act of 1992, 42 U.S.C. 4852d, requires sellers and landlords of residential housing built before 1978 (unless otherwise exempt) to disclose all available records or reports concerning lead-based paint hazards to purchasers or tenants. As the property owner you will be responsible for making a copy of the report available prior to signing a contract for sale or lease of the property. This disclosure must occur even if hazard reduction or abatement has been completed. You must also provide the buyer or renter with a copy of the pamphlet, "Protect Your Family from the Lead in Your Home". Failure to comply with this law is a violation of the U.S. Department of Housing and Urban Development and the U.S. Environmental Protection Agency regulations at 24 CFR Part 35 and 40 CFR Part 745 and can result in a fine of up to \$11,000 per violation. To find out more information about your obligations under the Federal lead-based paint requirement call 1-800-424-LEAD or call the Missouri Department of Health and Senior Services at 1-573-526-4911.</p> <p>Sincerely, [Signature] [Name of Assessor, typed] Missouri Licensed Lead Risk Assessor</p> <p>cc: file, Missouri Department of Health and Senior Services and Senior Services</p>

Section 5.0 Environmental Management	Page 1 of 2
Subsection 5.8 Written Work Plan	Revised

Environmental Management Written Work Plan

Within 10 business days after the date of the consultation meeting, a written plan of action, documenting the negotiation specifics and date of compliance reassessment, will be sent by returned receipt mail to the responsible party. The property owner must be given the opportunity to question or disagree with the document within three business days of receiving of the written plan of action and request revisions. If the owner does not respond as indicated, the document will be considered a binding agreement.

If the owner does respond, but indicates dissatisfaction with the action plan document, another discussion should occur. The second meeting should include an additional third party (e.g., MDHSS district environmental specialist licensed as a lead risk assessor, local administrator, supervisor, etc.) to clarify, correct, or explain the plan of action satisfactorily for both parties. A revised plan should then be mailed with a return receipt.

Contact with the owner/occupant should occur within 14 days to make sure that the owner is bringing the plan into compliance. Within 30 days of signing the work plan, the property owner should have implemented all interim controls agreed upon and began methods of abatement. Consideration should be given to conditions regarding compliance with exterior interim control and abatement methods. If, after 30 days, no effort is being made, refer to the discussion in this section on response to non-compliance follow-up.

A corrective action for every component and location of lead hazards should be addressed by the work plan. Sample written work plan included on next page.

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Subsection 5.8 Written Work Plan

Revised

Written Work Plan (Sample)

[Date]

[Property owner's Name]

[Mailing Address]

Dear Mr./Mrs. _____:

As discussed during our conversation held on [Date], the following work plan will be completed for your property located at [street address, city, State]. A clearance assessment has been scheduled for [Date] to ensure all agreed upon work has been accomplished. If you are unable to complete the work by this date due to unforeseen complications, please contact me as soon you are aware of a likely delay. Please do not wait until the clearance Assessment date to inform me of any such problems. Please note, if interim control methods are selected, a plan for the eventual abatement of the hazard must be included.

Plan of Action:

Room	Component	Recommended Action	MO Licensed Lead Abatement Worker Required	Date to be Completed
Kitchen	Floor	Thorough cleaning with a general household detergent	No	[Date]
Kitchen	Exterior Door	Strip lead-based paint from surface to bare wood. Repaint with a non-lead-based paint; or	Yes	[Date]
		Remove door and replace	Yes	[Date]
Front Porch	Wainscot	Paint film stabilization; or	No	[Date]
		Enclose with siding or wood, or	Yes	[Date]
		Encapsulate with an approved lead-based paint encapsulant; or	Yes	[Date]
		Removal of paint to bare wood with a chemical stripper or removal of component.	Yes	[Date]
Play yard, adjacent to front porch	Soil	Move play equipment from bare soil areas, plant bare soil areas with ground cover or shrubbery, or	No	[Date]
		Removal and replacement	Yes	[Date]

If the options listed above are not what you agreed to during the lead hazard reduction consultation, please contact me within 3 days of receipt of this letter at [telephone number]. A supplementary consultation will be scheduled to clarify and correct the plan of action. If you do not respond to indicate your dissatisfaction, this document will be considered a binding agreement.

Sincerely,

[Signature]

[Name of Assessor, typed]

Missouri Licensed Lead Risk Assessor

cc: file, Missouri Department of Health and Senior Services

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Subsection 5.9 Compliance and Re-Assessment Follow-Up	Revised

Environmental Management Compliance and Re-Assessment Follow-Up

On the finalized written work plan, an EBL assessment follow-up, will be conducted on the date agreed upon to determine compliance. A lead assessment follow-up should include both a visual examination and environmental sampling for lead-contaminated dust and soil, if appropriate. Dust wipes should be collected if lead-contaminated dust was an initial hazard, or if interim control or abatement methods could have produced lead dust. Lead assessment follow-up information, including any sampling or testing and type of lead hazard reduction activities completed should be collected on another EBL Risk Assessment Report. If corrections have been satisfactorily completed, the responsible party will be so advised, in writing. Information about the importance of maintenance and a schedule for on-going monitoring of interim control methods and encapsulation and enclosures abatement options will also be provided.

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Subsection 5.10 Non-Compliance Follow-Up	Revised

Environmental Management Non-Compliance

Consent to perform Risk Assessment (refer to Section 701.304 RSMo)

If permission is not given to enter the home and conduct an investigation by either the property owner or adult occupant, a representative of the Department, or the local health department may petition the circuit court for an order to enter the premises and conduct an inspection or risk assessment. The following must be documented before taking legal action:

1. A child six or fewer years of age who is an occupant or regularly visits the child occupied facility, and has been identified as having an elevated blood lead level.
2. Written notification has been sent by certified mail, at least 48 hours in advance, to the dwelling owner or adult occupant indicating the time and purpose of the risk assessment.

The local agency should attempt to get a court order at the local circuit court. If this is unsuccessful, the following steps may be taken:

- The health unit will send all documentation to the DHSS CLPPP and notify the owner that such a report has been made.
- CLPPP will assure that all necessary steps have been taken, documentation has been compiled, and will refer to DHSS legal staff.

Non-Compliance of Remediation of a Lead Hazard (refer to section 701.308 RSMo)

If the Department, representative of the local government, or local health agency finds that an owner of a dwelling where lead hazards have been identified has not complied with the requirement for abating or establishing interim controls, legal action can be taken. The following must be documented prior to taking legal action:

1. A notice of violation will be sent by return receipt mail to the owner of the property to;
 - Emphasize that continued non-compliance of the written plan of action is a violation of Missouri Revised Statute 701.300 - 701.336; and
 - Order that the owner of the dwelling or child-occupied facility cease and abate causing, allowing or permitting the violation and shall take actions necessary to comply with section 701.308 RSMo.

The following actions may also be taken:

- The local health unit may use community or other resources as available to relocate the occupants until the owner complies with the notice; and/or
- Refer case back to Case Management for DFS intervention

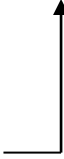
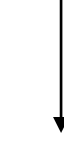

In cases where remediation action is not satisfactory, and all alternatives are exhausted, the following steps may be taken:

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Subsection 5.10 Non-Compliance Follow-Up	Revised

- The health unit will send all documentation to the DHSS CLPPP and notify the owner that such a report has been made.
- CLPPP will assure that all necessary steps have been taken, documentation has been compiled, and will refer to DHSS legal staff.
- DHSS legal staff will prepare a packet of information on the case to be sent to the local prosecuting attorney and/or the Attorney General. The local health agency will be notified when the referral for prosecution has been made.





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Subsection 5.11 EBL Risk Assessment Procedure Summary		Revised

**Environmental Management
EBL Risk Assessment Procedure Summary**

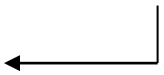
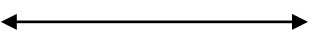
	<ul style="list-style-type: none"> A child under the age of 72 months is identified as having a venous blood lead level ≥ 20 $\mu\text{g}/\text{dl}$ or a second of two results ≥ 15 $\mu\text{g}/\text{dl}$ at least three months apart. 	
	<ul style="list-style-type: none"> MDHSS is notified of EBL by performing laboratory. 	
	<ul style="list-style-type: none"> The LPHA will be sent notification of the need for an environmental Assessment with a copy sent to the MDHSS District office EPHS (Elevated Blood Lead Level Report). The LPHA should assure the EBL Risk Assessment is completed. 	
	<ul style="list-style-type: none"> MO Licensed Lead Risk Assessor notifies Property Owner of Need for an EBL Risk Assessment of the Property. 	
	<ul style="list-style-type: none"> The Assessor must obtain permission from either the property owner or tenant to perform the EBL Risk Assessment. 	
<ul style="list-style-type: none"> If both parties refuse permission, notify property owner (by certified mail). The case will be referred to the Attorney General's office if permission is not granted. Inform parent/guardian the case may be referred to the Division of Family Services for medical neglect if intervention 		<ul style="list-style-type: none"> Permission is granted and the Approval Request to Perform an EBL Risk Assessment form is signed and dated by either the tenant or the property owner.

<h2 style="text-align: center;">Section 5.0 Environmental Management</h2>	Page 2 of 3
	Revised

Subsection 5.11 EBL Risk Assessment Procedure Summary

actions are not taken.			
<ul style="list-style-type: none"> If permission in not granted, refer case to Attorney General's Office. 			
<ul style="list-style-type: none"> An administrative search warrant may be granted to perform the Assessment. 			
	<ul style="list-style-type: none"> Schedule an appointment with the tenant to perform the Assessment. 		
	<ul style="list-style-type: none"> If an appointment to perform the Assessment is scheduled, mail a confirmation letter to the tenant as a reminder. 		
<ul style="list-style-type: none"> The Assessor will be accompanied by a uniformed law enforcement officer to conduct the risk assessment. 			<ul style="list-style-type: none"> Assessor conducts the Assessment.
		<ul style="list-style-type: none"> Perform visual assessment and devise sampling plan. 	
		<ul style="list-style-type: none"> Collect environmental samples (paint, soil, dust, and water) 	
		<ul style="list-style-type: none"> Complete On-Site Preliminary Lead Assessment Report. Send or leave a copy with the owner and tenant and send a copy to the MDHSS, CLPPP within 10 days. 	
	<ul style="list-style-type: none"> When environment samples results are obtained, complete the EBL Risk Assessment Report and send a copy to the property owner and MDHSS, CLPPP. 		
<ul style="list-style-type: none"> No hazards are found 			<ul style="list-style-type: none"> Lead Hazards are found.
<ul style="list-style-type: none"> Close Case 			<ul style="list-style-type: none"> Schedule a consultation meeting with the property owner. Discuss with the property owner interim control and abatement methods for each hazard

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		identified.
		<ul style="list-style-type: none"> Complete a written Work Plan and send to property owner.
		<ul style="list-style-type: none"> In 2-3 weeks, a drive-by check should be made to assure compliance with the Work Plan and work practice standards
	<ul style="list-style-type: none"> Compliant 	<ul style="list-style-type: none"> Non-compliant.
		<ul style="list-style-type: none"> If work practice standards are not being followed, make referral to MDHSS, BLLA. If work has not begun as directed by the Work Plan, contact property owner to determine the cause of delay. If the property owner does not have just cause for the delay, inform the owner legal action will be taken if Work Plan has not be initiated within 30 days of receipt.
		<ul style="list-style-type: none"> Non-compliant.
		<ul style="list-style-type: none"> Referral to appropriate enforcement agency for legal action.
	<ul style="list-style-type: none"> When Work Plan has been completed, conduct clearance Assessment. Complete parts A and B of the EBL Risk Assessment form and send a copy the tenant, property owner, and MDHSS, CLPPP. 	
<ul style="list-style-type: none"> Acceptable 		<ul style="list-style-type: none"> Not acceptable.
<ul style="list-style-type: none"> Close Case 		

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Environmental Management Environmental Sampling Methods and Procedures

The results of the environmental samples will assist in determining the probable sources of lead exposure in the child's environment and the course of action that should be taken to control or eliminate the source. Samples should therefore be collected in a manner that provides for the most accurate results and all pertinent information carefully documented. Although accuracy is important to protect the Assessor's liability in the event of legal actions or for the enforcement of corrective actions, the paramount reason for the sampling is to identify the lead hazards in the child's environment and implement control methods that will protect the child.

Only laboratories recognized under EPA National Lead Laboratory Accreditation Program (NLLAP) for analysis of dust wipe, soil, and risk assessors' performing EBL Risk Assessments should use paint.

I. Paint (or other surface coating material) that is deteriorated or located on a chewable, friction, or impact surface:

A. Selecting a sampling method.

1. Using an XRF analyzer

- a. Assessment of lead-based paint hazards may be accomplished by the use of an X-ray Fluorescence Analyzer (XRF), which measures the weight of lead (in milligrams-mg) per specified unit of area (cm²). For the purpose of an EBL Risk Assessment an XRF analyzer should only be used where there is deteriorated paint or is a coated chewable, impact, or friction surface.

The user of an XRF analyzer must be a Missouri Licensed Lead Inspector or Risk Assessor and have received a certificate of training provided by the device manufacturer. Before taking readings with the analyzer during an EBL Risk Assessment, the instrument must be calibrated according to the specific instrument's XRF Performance Characteristic Sheet (PCS) and manufacturer's operation manual. Also to ensure quality assurance, a Quality Assurance/Instrument Performance sheet should be used to record calibration checks throughout an EBL Risk Assessment. This form (or a copy) should be included in the final Assessment report. The action level for lead content is **1.0 mg/cm²** if measured by an XRF analyzer. Some analyzers will also analyze soil and dust wipe samples. Results falling within the instrument's inconclusive range as specified by the PCS as well as results very close to the action level should be confirmed as a hazard by laboratory analysis of paint chip or dust wipe samples before attempting to enforce abatement activities. If the parent/guardian and property owner prefers to be proactive and address all inconclusive results as positive sources,

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confirmation of XRF results in the inconclusive range is not necessary. It must be documented on the Assessment report how inconclusive XRF analyzer results will be handled.

NOTE: An XRF analyzer is a useful tool, however, it is not required to conduct an EBL Risk Assessment. Paint chip samples and dust wipe samples can be used to obtain the same information. The advantage the XRF analyzer offers is immediate sample results.

In order to prevent any exposure to radiation, it is recommended that children not be present in the room being tested or adjacent rooms while using an XRF.

b. Interpreting XRF analyzer results

When interpreting XRF analyzer results, it is important to know whether the analyzer is a direct or spectrum reading instrument. This will be discussed in the training provided by the manufacturer. The following practices must be followed in order to correctly interpret the results of the analyzer:

- Take at least three readings per component and average the results. If a large discrepancy in readings is observed, additional readings should be taken in order to eliminate the possibility of a biased result. It is common, though, for components to have been previously painted with a lead-based paint and then repainted with a non-lead-based paint. Because of uneven wear and deterioration and inconsistent scraping, readings may vary widely on a single component. Remember, if the paint is intact and it is not a friction or chewable surface, it should not be initially considered a hazard and should not be tested. If the paint is deteriorated and the surface coating is a non-lead-based paint, but has been applied over a lead-based paint, the surface coating may take the undercoating with it as it peels, flakes, chips, cracks, chalks, etc.

It is important to know the surface depth the analyzer will read on various substrates. It is common to get elevated readings with a direct reading instrument if the face of the analyzer is placed such that a hidden lead source lies behind or within the component being tested. Biasing sources and objects may include pipes, electric wire, window counter-weights, glazed ceramic tile, lead-based paint located on the other side of a relatively thin wall, door, etc., or lead-based paint that has been enclosed or encapsulated.

2. Paint Chip Sampling

a. Collecting a sample

There are several reasons it may be necessary to collect paint samples for laboratory analysis. It may be necessary to utilize both methods of sample analysis when there is a need for confirmation of XRF results. These cases include:

- inconclusive XRF readings as defined by the equipment manufacturer;
- the surface is small or irregular and cannot be tested with an XRF analyzer; or
- confirmation of XRF readings for court cases.

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When an XRF is not available, paint chip samples should be collected from areas in which the child is at risk of exposure and the paint is in a state of disrepair (cracking, peeling, or flaking). The action level for lead in paint is **0.5%** by weight when laboratory analysis is utilized. A paint chip sample that has a lead concentration which exceeds 0.5% by weight (equivalent values are 5,000 ppm, 5,000 µg/g, or 5,000 mg/kg) is considered a lead-bearing substance.

Paint chip samples should be collected according to the following procedure:

- With permanent ink marker, tape, or self-adhesive label, clearly identify on a resealable plastic bag the address, sample number, sample location, and date sample is collected.
- Using a clean, sharp knife or scalpel, score the paint sample area. The equivalent of **three square inches** of paint should be collected for submission to State Public Health Laboratory (SPHL).
- Attempt to lift the paint off by sliding a thin utensil along the score and underneath the paint, and remove a section down to the substrate. Care should be taken to avoid including any substrate materials in the sample.
- Fill out the Environmental Lead Analysis form (**Figure 6**) for **each** sample when using the State Lab. Identification of sample collection location must be on the lab form.

b. Interpretation of Results

Paint chip sample results are typically easier to interpret than XRF analyzer readings. One reason for this is laboratory analysis of paint chips measures the concentration of lead with regard to mass, not area. XRF analyzer readings of a given paint may vary widely with location on the same component based on changes in paint thickness, but the concentration in percent lead by weight should not.

Do not collect fallen chips below a source and assume the chips came from a particular component. The paint must be removed from the component being tested by the Assessor at the time of the Assessment.

It is also important not to make too many assumptions regarding paint history of an older home. A single paint chip sample is not representative of all of the paint on the premises. If assumptions are made regarding the paint history of unrelated testing combinations (room, component, substrate, and color), they should be clearly documented with specific justification for the assumptions. Typically, a paint chip sample should be collected from each testing combination that has a surface coating in deteriorated condition located in an area, or having the potential to contaminate an area, accessible to the child.

II. Soil

The soil surrounding a dwelling can be contaminated with lead from several different sources. Weathering, chalking, and peeling paint on the building's exterior is the most common cause of soil contamination. Although leaded gasoline has been generally phased out under an EPA regulation, lead has entered the environment from this source.

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For dwellings close to highways or major surface streets, considerable lead contamination is possible. Other sources of lead contamination from point sources include lead smelters, battery manufacturing plants, steel structures, and auto repair sites. The top 1/2 inch of soil usually contains the highest concentration of lead, and bare areas pose the most risk of lead hazard exposure and, therefore, should be the focus of the sample collection.

Areas to collect soil samples include, but should not be limited to, the following:

- play areas
- building foundation, extent depending on bare area, soil type, and slope
- gardens
- shooting ranges (especially indoor ranges)
- pathways, high traffic areas
- sandboxes
- burn piles
- driveways

A. Procedure for collecting a soil sample

1. With a permanent ink marker, tape, or self-adhesive label, clearly identify on a resealable plastic bag the address, sample number, sample location and date sample is collected.
2. In order to reduce variability, all soil samples collected for routine residential lead-based paint risk assessment purposes are composite samples. This means that soil collected from one spot is mixed with soil collected from another nearby spot. Usually, one composite sample is collected from the child's principle play area(s) (if it can be identified) and a second composite sample is collected from near the building foundation. Each composite sample usually consists of three to ten subsamples mixed together. Subsamples collected from different use areas must be submitted separately to gain accurate information. The subsamples should be roughly equidistant and at least two feet from one another. The samples should be collected along an arbitrary axis or X-shaped grid. The axis or grid should be marked on the sketch of the house or room (yard) plan.
3. Subsamples are usually collected using a scoop or a coring device. Some devices have a T-handle or may use a hammer for hard or frozen soil. A 5 or 10cc disposable syringe with the hub end removed may be used as a coring device. The syringe will not work well in hard, rocky, or loose soils;
4. The samples should contain only the top half (1/2) inch of soil, and each subsample should be as close to the same size as possible by visual approximation. If a coring device is used, it may be difficult to retain 1/2 inch of soil in the barrel or chamber. A coring depth of up to two inches may be required to retain the core in the sampling tool. The plug should be removed from the tool, and only the top 1/2 inch added to the sample.
5. If paint chips are present in the soil, they should be included as part of the soil sample. However, there should be no special attempt to over sample paint chips. The laboratory should be instructed to disaggregate paint chips by forcing them through a sieve in the laboratory. Although paint chips should not be over sampled, they also should not be excluded from the soil sample, since they are part of the soil matrix.

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6. An XRF analyzer according to the manufacturer's procedure manual may analyze samples.
7. At least 400 grams (approximately 1 pint) is required for lab analysis. Check with the lab being used to verify what is required.
8. No blank or field "spike" (control) samples are required for routine lead-based paint risk assessments.
9. Fill out the Environmental Lead Analysis request form, also referred to as a chain-of-custody form by some laboratories, (MDHSS Laboratory form on following page) for each sample. Identification of sample location must be on the lab form.

B. Interpretation of Soil Results

1. A soil sample which has a lead concentration that exceeds one of the following values is considered to be a lead-bearing substance:
 - 400 ppm for bare soil areas when children have access to the site, and
 - 1,200 ppm for bare soil areas when children do not have access to the site.

If either of these two conditions is met, recommendations for interim control methods must be provided to the occupant and property owner. If the average level of lead in soil exceeds 5,000 ppm, the area must be abated.

2. These are threshold levels established as a guideline for environmental management as well as a regulated action levels on which to base enforcement actions. These thresholds, or action levels, were established based on research identifying unsafe levels of lead in soil posing a threat to children under "routine" or "average" conditions. For the purposes of environmental epidemiology, however, the Assessor must consider the soil concentration along with other factors, including:
 - the child's behavior, such as pica tendencies, and amount of time spent outside playing, does the child suck on his/her fingers or toys, etc;
 - social factors, such how well is the child supervised when playing outside; and;
 - the nutritional quality of the child's diet.

If the soil concentration is below the 400-ppm threshold, but the level of exposure is significantly increased due to the child's behavior and social environment, the soil may still be the primary source of hazardous lead for the child.

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III. Water

Although the hardness of most water supplies in the state inhibits the leaching of lead into drinking water, there are still several possible sources of lead in drinking water:

- Homes with copper plumbing and lead/tin solder (lead solder is now prohibited, but illegal use does continue);
- Lead service lines or interior lead plumbing in older homes may result in leaching into the water supply;
- New pipes containing brass fittings; and
- New faucets containing brass.

Because the most likely sources of lead in drinking water are internal to the dwelling, lead tends to build up in water stagnant in pipes during an eight (8) hour period or more. Testing this water is a “first draw” sample. A “purged” sample is water collected from a source after it has been running for at least two (2) minutes. Both of these water sample types must be collected from the most commonly used water sources (kitchen sink, bathroom sink, etc.). Federal standards issued by EPA in 1991 limit the amount of lead that is acceptable in public drinking water supplies to <15 parts per billion (ppb). Elevated levels of lead in the first draw sample may be an indication that water is lead contaminated within the dwelling unit’s plumbing system. Elevated levels of lead in the purged sample may be an indication of lead contamination at the water source or water supply lines outside the dwelling. If the faucet is a long distance from the main source, it may be necessary to allow the water to purge for more than two minutes

A. Collecting a Sample

1. With a permanent ink marker, tape or self-adhesive labels, clearly identify on a one-liter container, the address, sample number, sample location and date sample is collected.
2. Turn on cold water faucet most frequently used for cooking and drinking. For first draw sample collection, water that is immediately discharged from faucet should be collected. The purged sample requires that the water run about two (2) minutes before collection begins.
3. Collect at least 500 ml of water in each container provided by SPHL.
4. Fill out the Private Water Supply request form (following page) for **each** sample. Identification of sample location must be on the lab form.

IV. Dust

To substantiate or refute the initial hypothesis established at the onset of an EBL Risk Assessment as to the nature of the causative source, it is essential for dust wipe samples to be collected and analyzed.

Although other sampling methods provide valuable information to the Assessment, wipe sampling is the recommended method for most routine risk assessment work for the following reasons:

- It is relatively simple and inexpensive,
- It has been correlated with children’s blood lead levels in a number of studies,

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- Current State, EPA, and HUD standards are based on wipe sampling, and
- Vacuum sampling methods are not standardized.

Standards have only been established for the following, however dust wipe sampling should not necessarily be limited to these three components:

Floors	40 µg/ft ²
Interior Window Sills (stools)	250 µg/ft ²
Window Troughs (wells)	400 µg/ft ²

Other suspect surfaces that may be tested for lead-contaminated dust include:

- Vehicle Interior;
- Toys;
- Furniture (especially antique);
- Cabinets (especially antique cabinets used for storing foods and food-related utensils);
- Vinyl slats of miniblinds;
- Areas of walls contaminated with smoke residue from candles, portable heaters, wood burning stoves, etc.;
- Porcelain tubs (especially cast iron) used by children for bathing; and
- Ceramic tile on floors where children walk and play;

The testing of these surfaces is left to the discretion of the risk assessor based on knowledge of the child's habits, behavior, routine and possible lead sources. There are no established threshold levels for these surfaces. However if the surfaces have lead concentrations in a comparable range to the thresholds established for window-sills, troughs or floors, they should be considered as potentially hazardous and removed from the child's environment as soon as possible.

If an object, such as a toy, has an irregular surface and it is not possible to measure the surface area, it is still possible to perform a dust wipe analysis. Because the information sought, in this case, is for epidemiological purposes only, the dust wipe sample collection can be used as a qualitative test only. The wipe will indicate whether the surface is positive or negative for lead-contaminated surface dust. If the result is positive, further testing may be necessary to determine whether the item has been contaminated by other sources, or if the item itself is a lead-bearing surface. If the product is found to be a lead-bearing surface, the Assessor needs to contact the Missouri Department of Health and Senior Services, Childhood Lead Poisoning Prevention Program. An assessment will be initiated to determine if the lead is a content of the product, if it is an additive or a contaminant, if the product is still on the market, and if a product recall is warranted. Throughout this process, the Missouri Department of Health and Senior Services will work closely with the Consumer Product Safety Commission and the product manufacturer.

Dust may be analyzed as an area concentration, using the dust wipe method, or it may be reported as mass concentration (percent by weight, µg/g, ppm, or mg/kg). Dust samples collected from vacuum sweeper bags are typically reported by mass concentration. Also, dust collected from carpeting, upholstered furniture, or draperies by a HEPA vacuum can provide valuable information difficult to obtain otherwise.

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A: Collecting a Sample

1. With a permanent ink marker, tape or self-adhesive labels clearly identify on a conical tube the address, sample number; sample location and date sample is collected.
2. Carefully place a clean template on the surface where the sample is being collected in a manner that minimizes disruption of settled dust at the sampling location. Either tape or place a heavy object on the outside edge of the template to prevent it from moving during sample collection. A one square foot plastic template or wide masking tape measured to one square foot may be used when taking samples from floors. When sampling windowsills and window troughs, the length and width should be measured in inches. These dimensions can be converted to square feet by using the following equations:

$$\frac{\text{Length} \times \text{Width}}{144} = \text{square foot.}$$

144

If the sampling area dimensions are included on the laboratory sample collection form (chain-of-custody form), most environmental laboratories will report the results in the appropriate units ($\mu\text{g}/\text{ft}^2$) with the conversion already calculated. If the SPHL is used, the Assessor will need to perform the calculation.

3. Pull on a pair of clean, disposable plastic gloves. Powder-free are recommended. If only one hand is use to handle the wipe, only that hand needs to be gloved.
4. If a new bulk-packed container of wipes is opened, remove a minimum of the top two wipes from the container. Do not use the wipes if they have dried out. If the SPHL services are used, only wipes that are supplied by the laboratory can be used for the collection of dust wipe samples. The state lab will not test samples that are submitted on other types of wipes. If a private lab is used, examples of acceptable wipe media include:
 - Little Ones Baby Wash Cloths™
 - Little Ones Baby Wipes Natural Formula™
 - Little Ones Baby Wipes Lightly Scented™
 - Pure and Gentle Baby Wipes™
 - Fame Baby Wipes™
 - Individually packaged, Wash'n Dri Wipes™
 - Individually packaged, Wash-a-bye Baby™
 - Wet Wipes™ and
 - Other brands meeting analysis requirements for background lead contamination and laboratory digestion recoveries.
5. Pressing down firmly, wipe the selected area marked off, starting at either corner, using a slow side-to-side sweeping motion ("S" pattern).
6. Fold the wipe in half with the sample side inside the fold.
7. At a 90-degree angle to the first "S" pattern, repeat wipe procedure on the clean side of the dust wipe.
8. Fold in half and perform a third wiping around the perimeter of the sampling area to collect any dust remaining in the corners. If dust residue is still on the surface, additional passes may be necessary. If the surface is heavily laden with dust, a smaller area may be used (remember to use the conversion formula for area).

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9. If the SPHL is used, fold the wipe sample and place it in a conical tube. Dust samples must be stored in a 50 ml conical tube supplied by the laboratory. These tubes are metal free and double as the extraction vessel. If a private laboratory service is used, follow their protocol.
10. Mark the tube with sample number, location and surface.
11. A field blank must be submitted with each set of dust wipe samples. Field blanks should be collected in the same manner as used to collect field samples with the exception that no surface is wiped. These field blank samples are used to identify any potential lead contamination present in the wipe and during handling of wipes.
12. Fill out the Environmental Lead Analysis request form (chain-of-custody form) for each sample. Identification of sample location must be on the lab form as well as the dimensions of the sample area.
13. According to 19 CSR 30-70.620(9), composite dust samples are not to be used when conducting an EBL Risk Assessment risk assessment.


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Figure 6: Environmental Lead Analysis Request Form - (Form #LAB.18)

	MISSOURI DEPARTMENT OF HEALTH STATE PUBLIC HEALTH LABORATORY ENVIRONMENTAL LEAD ANALYSIS	307 WEST McCARTY STREET P.O. BOX 570 JEFFERSON CITY, MO 65102	Figure 6
			DATE COLLECTED
Environmental lead analysis is used to follow up confirmed elevated lead levels of children. Samples will only be analyzed if submitted by a State or local Public Health official. A SEPARATE FORM SHOULD BE COMPLETED FOR EACH SAMPLE.			
(THE FOLLOWING INFORMATION MUST BE SUPPLIED)			
PATIENT NAME (LAST, FIRST, MIDDLE)		BIRTH DATE	
PARENT'S NAME (LAST, FIRST, MIDDLE)			
SAMPLE LOCATION ADDRESS (STREET, CITY, STATE, ZIP CODE)			
PROPERTY OWNER NAME (LAST, FIRST, MIDDLE)			
ADDRESS (STREET, CITY, STATE, ZIP CODE)			
SEND REPORT TO (Please print clearly - This is your mailing address)			
NAME			
ADDRESS (STREET, CITY, STATE, ZIP CODE)			
SAMPLE TYPE			
<input type="checkbox"/> SOIL <input type="checkbox"/> PAINT <input type="checkbox"/> DUST WIPE <input type="checkbox"/> OTHER _____			
SAMPLE DESCRIPTION (LOCATION, ETC.)			
_____ _____ _____			
LABORATORY REPORT			
RESULT LEAD LEVEL			
_____ _____ _____ _____ _____			
REC	BY	REPT	BY
LOG NO			

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Figure 7: Private Water Supply Request Form - (Form # LAB.65)

Figure 7

 <div>MISSOURI DEPARTMENT OF HEALTH STATE PUBLIC HEALTH LABORATORY PRIVATE WATER SUPPLY</div>		FOR DRINKING WATER ONLY	
SAMPLES SUBMITTED WITHOUT COLLECTION DATE WILL NOT BE TESTED			
SAMPLE SUBMITTED BY		TELEPHONE NUMBER	
MAILING ADDRESS			
COUNTY	CITY	STATE	ZIP CODE
SAMPLE COLLECTED BY		DATE COLLECTED	
LOCATION OF SAMPLE COLLECTION TOWNSHIP: RANGE: SECTION:		POINT OF SAMPLE COLLECTION	
NAME/LOCATION			
ADDRESS			
SUPPLY TYPE <input type="checkbox"/> PRIVATE <input type="checkbox"/> NON COMM. PUBLIC <input type="checkbox"/> PUBLIC SUPPLY <input type="checkbox"/> OTHER _____			
BRIEF DESCRIPTION OF PROBLEM/REASON TESTING BEING REQUESTED			
TESTS REQUESTED			
ADDITIONAL COMMENTS			
FOR LABORATORY USE ONLY			
REC	BY	REPT	LOG NO.

MO 590-0763 (4-92) LAB.65 (R4-92)

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Subsection 5.13 Reporting Information to MDHSS and CLPPP	Revised

Environmental Management
Reporting Information to MDHSS and CLPPP

For all EBL Risk Assessments performed, the following must be submitted to MDHSS:

- On-Site Preliminary EBL Risk Assessment Report;
- EBL Risk Assessment Report Parts A, B and C and;
- On re-assessments, Report A and B. Report C shall be submitted on re-assessments if no remediation was done and another completion date is given.

Submit the above documents to the Missouri Department of Health and Senior Services, Section for Environmental Public Health, 930 Wildwood, P.O. Box 570, Jefferson City, MO 65102.

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Subsection 5.14 EBL Risk Assessment Case Closure	Revised 08/08/02

Environmental Management
EBL Risk Assessment Case Closure

The following criteria are required to close an environmental case:

- No hazards found at address related to interior or exterior lead-based paint, lead-contaminated soil, lead-contaminated drinking/cooking water source, or lead-contaminated household dust.
- Property permanently removed from rental market and no child with an EBL continues to reside at the premises.
- Remediation completed and/or interim control methods established and lead concentrations for all clearance dust wipe, soil, and water samples from previously hazardous sources are below acceptable threshold levels.
- Sale of property, no child with an EBL resides at the property.
- Administrative closure. Note: This option is reserved for special extenuating circumstances only. Because of the liability incurred by a health department for improper case closure that results in continued exposure of the child to a lead hazard, thorough documentation and prudent discretion should be used.

A complete case record should contain the following documents:

- authorization to do an EBL Risk Assessment;
- notification of environmental EBL Risk Assessment request;
- access approval request form;
- copy of the lead risk assessment questionnaire;
- on-site preliminary EBL Risk Assessment report;
- laboratory sample analysis results;
- EBL Risk Assessment report and all addendums;
- notation of all contact attempts;
- written plan of action and all addendums; and
- any compliance notices.

Environmental records must be retained for no fewer than three years (according to 19 CSR 70.620(13) or what is required by your local ordinance after case has been closed).

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Subsection 5.15 Interim Control Methods and Procedures	Revised 08/08/02

Environmental Management
Interim control Methods and Procedures

Although multiple EBL cases may be present concurrently in a multifamily housing complex, each unit housing a child meeting the EBL criteria is to be considered independently. If the dwelling unit has been found to contain lead hazards, the property owner should consider having the remaining unit(s) assessed for hazards and correct any identified hazards. If lead hazards are found in a common-use area of a multifamily housing complex, such hazard(s) must be disclosed any time a contract is signed for the sale or lease of any unit contained within the facility. Otherwise, disclosure of lead hazards is required only for the sale or rental of the unit specified in the report.

Statute definition:

Interim control – any measure designed to temporarily reduce human exposure or likely exposure to lead hazards. Such measures may include, but are not limited to, specialized cleaning, repairs, maintenance, painting, temporary containment, ongoing monitoring of lead hazards or potential lead hazards, or the establishment and operation of management and resident education programs (§701.301(12)).

Individuals performing interim controls do not need to be licensed in a lead occupation. The scope of the interim control must be limited to activities that only temporarily reduce human exposure to lead. Activities that permanently eliminate exposure to lead hazards such as replacement, encapsulation and enclosure are considered abatement activities and require licensure in the appropriate lead occupation.

The following are examples of interim controls:

- Paint film stabilization. This might include repairing small areas on a component where lead-based paint is showing signs of deterioration such as peeling, chalking, or alligating.
- Friction and impact surface treatment. Friction and impact surfaces such as doors, baseboards, trim, moldings, windows and steps are areas where lead hazards are frequently found. Measures such as dust control and lead-based paint stabilization can be taken to minimize the potential for lead hazards on these surfaces
- Dust removal and control. This might include wet mopping uncarpeted floors, wiping down window frames and sills with water and detergent, or vacuuming with a HEPA filter equipped vacuum.
- Soil interim control. Impermanent ground covers such as grass seed or sod, mulch, shrubbery or gravel may be placed over bare soil to help prevent exposure to lead-contaminated soil. Land use controls such as fences, warning signs or thorny bushes also help prevent exposure.

Guidance:

The United States Department of Housing and Urban Development (HUD) developed a publication entitled “Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing” which outlines proper work practice standards for conducting lead-bearing substance activities in residential dwellings. Interim controls are covered in detail in Chapter 11 of these guidelines. We encourage home and property owners to refer to these HUD guidelines when performing interim controls. Copies of Chapter 11 can be obtained by contacting the Missouri Department of Health and Senior Services, Bureau of Lead Licensing and Accreditation at 1-888-837-0927.

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Subsection 5.15 Interim Control Methods and Procedures	Revised 08/08/02

Interim Controls Guidelines:

- Repairing all rotted or defective substrates that could lead to rapid paint deterioration.
- Paint film stabilization – stabilizing all deteriorated lead-based paint surfaces by removing deteriorated paint and repainting.
 - Under certain conditions, paint stabilization will not last very long.
 1. Prerequisite repairs not possible;
 2. High probability of future physical damage;
 3. Stairwell walls with visual and likely physical damage (enclosure with wood wainscot is an acceptable alternative to paint stabilization);
 4. Children’s play equipment (removal of paint or disposal of equipment is better options);
 5. Wall surfaces that are structurally unsound;
 6. Walls with a layer of wallpaper over or under lead-based paint; and
 7. Weep holes in storm windows not cleared to allow ventilation and drainage of water.
- Friction and impact surface treatments – treating floors and interior window sills and window troughs so that they are smooth and cleanable.
- Treating friction and impact surfaces, such as windows, doors, stair treads, and floors, when they are generating lead-based paint chips or excessive levels of leaded dust that cannot be controlled with ordinary cleaning.
- Treating all bare soil containing excessive levels of lead.
 1. Measures that alter the contaminated soil. Interim controls usually involve only minimal alterations to the soil. The installation of grass or other planting, for example, will often involve surface cultivation or addition of a thin layer of new soil (no more than three inches) for the ground cover to become established;
 2. Measures that alter the surface cover. Various types of surface coverings may be considered, including grass (either through seeding or planting of sod), other live ground covers (e.g., juniper shrubs, ivies), artificial turf, bark and gravel;
 3. Land use controls, which include fencing, decks, warning signs, creation of alternative play areas for children, removal of play equipment from bare areas, education efforts and planting thorny or dense bushes.
- Dust removal and control – cleaning surfaces to reduce levels of leaded dust to acceptable levels, including cleaning carpets, if they are contaminated.
- Educating residents and maintenance workers on how to avoid lead poisoning
- Conducting reevaluations by certified individuals, ongoing monitoring by owners and observation by residents.

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Environmental Management Abatement Methods and Procedures

General

Definition by State Statute:

Abatement: Any measure regulated solely by the Missouri Department of Health and Senior Services designed to permanently eliminate lead hazards, which shall include:

The removal of lead bearing substances, the replacement of lead-painted surfaces or fixtures, or the permanent enclosure or encapsulation of lead-bearing substances; and all preparation, cleanup, disposal and post-abatement clearance testing activities associated with such measures; “abatement” shall not include any measure involving a de minimis surface area or activity excluded from this definition by rule.

The law states a licensed lead abatement worker is required for each abatement project once an EBL child has been identified. Access to the regulated area shall be limited to BLL-licensed professionals or department-authorized persons.

All waste generated from a lead-based paint abatement project shall be disposed of in accordance with requirements of EPA, Missouri Department of Natural Resources, and any other applicable federal, state and local laws.

Note: Missouri State Statute prohibits anyone other than a licensed lead abatement worker from performing abatement actions if a child with an elevated blood lead level resides at the residential dwelling. EPA requires this regulation to be included in the Statute for program accreditation.

The cost of having the abatement project completed by a licensed lead abatement contractor may be beyond the family means. If a child with an EBL resides in an owner-occupied dwelling and the family is low-income, it is important to work with the family to implement an effective interim control plan until abatement can be afforded. A lead abatement worker or contractor license is not required to perform interim control activities.

Every case of a child with an EBL is different and involves unique circumstances. The Assessor must use professional judgement in choosing the route of action that provides for the best interest of the child. If grant funding is not available in the community for abatement activities, and abatement strategies are beyond the means of the family, interim control measures should be stressed. In addition, the family should also be counseled on hygiene, modification of the child’s behavior and habits, housekeeping, and nutrition. If interim controls are implemented, the Assessor to ensure their effectiveness over time, should establish a reassessment schedule.

Maintaining interim controls for an indefinite period of time to control a lead hazard should not be considered an option for a rental residence and abatement within a reasonable time frame should be pursued aggressively.

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If the property owner wishes to comply with this regulation, but can not locate a licensed lead abatement contract to accept the project at a reasonable cost, the property owner should contact the MDHSS Office of Lead Licensing and Accreditation at (888)837-0927 for compliance assistance.

Permissible Lead Abatement Project Strategies

Strategies that are permissible for lead abatement projects are as follows: Replacement, enclosure, encapsulation, or removal. Any abatement strategy not specified herein shall be submitted to the Missouri Department of Health and Senior Services, Bureau of Lead Licensing, P.O. Box 570, Jefferson City, Missouri, 65102-0570 for evaluation and approval prior to use.

Replacement

When conducting a lead abatement project using the replacement strategy, these minimum requirements shall be met:

- The site shall have an appropriate barrier to prevent unauthorized people from approaching closer than 20 feet to the replacement operation.
- Warning signs shall be posted at all entrances to the regulated area.
- Any heating and cooling systems within the regulated area shall be shut down and the vents sealed with 6-mil poly to prevent lead dust accumulation within the system.
- All items shall be cleaned within the regulated area by HEPA vacuuming and/or wet wiping with a cleaning solution. Items shall then be removed from the area, or covered with 6-mil poly and sealed with duct tape.
- At least one layer of 6-mil, (or thicker), poly shall be placed on the floor at the base of the component and extend at least 10 feet beyond the perimeter of the component to be replaced.
- The component, and the area immediately adjacent to the component, shall be thoroughly wetted using a garden sprayer, airless mister, or other appropriate means to reduce airborne dust.
- After removal of the component, the surface behind the removed component shall be thoroughly wetted to reduce airborne dust.
- The component shall be wrapped or bagged completely in 6-mil poly and sealed with duct tape to prevent loss of debris or dust.
- Prior to installing a new component, the area of replacement shall be cleaned by HEPA vacuuming. After replacement is complete, the regulated area shall be cleaned, by vacuuming with a HEPA vacuum, wiping down all surfaces with a cleaning solution, rinsing all surfaces, and then HEPA vacuuming the area again. Cleaning shall begin at the end of the work area farthest from the main entrance to the area and from the top to the bottom of the regulated area.

Enclosure

When conducting a lead abatement project using the enclosure strategy, these minimum requirements shall be met:

- The site shall have an appropriate barrier to prevent unauthorized people from approaching closer than 20 feet to the replacement operation.
- Warning signs shall be posted at all entrances to the regulated area.
- Any heating and cooling systems within the regulated area shall be shut down and the vents sealed with 6-mil poly to prevent lead dust accumulation within the system.

- All items shall be cleaned within the regulated area by HEPA vacuuming and/or wet wiping with a cleaning solution. Items shall then be removed from the area or covered with 6-mil poly and sealed with duct tape.
- At least one layer of 6-mil, (or thicker), poly shall be placed on the floor at the base of the component and extend at least 10 feet beyond the perimeter of the component to be enclosed.
- The surface to be enclosed shall be labeled (behind the enclosure), “Danger: Lead-Based Paint”.
- The enclosure material shall be applied directly onto the painted surface, or a frame shall be constructed of wood or metal, using nails, staples, or screws. Glue may be used in conjunction with the aforementioned fasteners, but not alone.
- The material used for the enclosure barrier shall be solid and rigid enough to provide adequate protection. Materials including, but not limited to, wall papers, contact paper, films, folding walls, and drapes do not meet this requirement.
- Enclosure systems and their adhesives shall be designed to last at least 20 years.
- The substrate or building structure to which the enclosure is fastened shall be sufficient structurally to support the enclosure barrier for at least 20 years. Deterioration such as mildew, water damage, dry rot, termite damage or any significant structural damage may impair the enclosure from remaining dust tight.
- Pre-formed steel, aluminum, vinyl or other construction material may be used for window frames, exterior siding, trim casings, column enclosures, moldings, or other similar components if they can be sealed dust tight.
- A material equivalent to 1/4” rubber or vinyl may be used to enclose stairs.
- The seams, edges, and fastener holes shall be sealed with caulk or other sealant, providing a dust tight system.
- All equipment used in the regulated area shall be thoroughly cleaned with a cleaning solution and/or vacuumed with a HEPA vacuum prior to removal from the regulated area.
- Prior to clearance, the installed enclosure and surrounding regulated area shall be cleaned by vacuuming with a HEPA vacuum, wiping down all surfaces with a cleaning solution, rinsing all surfaces, and then HEPA vacuuming the area again. Cleaning shall begin at the end of the work area farthest from the main entrance to the area and from the top to the bottom of the regulated area.
- It is recommended that a visual evaluation of the enclosure’s integrity be conducted and documented by the building owner or the building owner’s representative at least every year or immediately after any fire, water, or structural damage. In child-occupied facilities, it is recommended that a licensed risk assessor inspect all enclosures every three years, or whenever the owner’s visual evaluation indicates a potential for increased lead hazard exposure.

Encapsulation

The encapsulation strategy of lead abatement shall not be used on the following:

- Friction surfaces – such as window sashes and parting beads, door jambs and hinges, floors, and door thresholds.
- Deteriorated components - including rotten wood, rusted metal, split or cracked plaster, or loose masonry.
- Impact surfaces, such as doors stops, window wells and headers.
- Deteriorated surface coatings such that the adhesion or cohesion of the surface coating is uncertain or indeterminable.

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- Incompatible coatings.

When conducting a lead abatement project using the encapsulation strategy, these minimum requirements shall be met:

- Encapsulant selection shall be limited to those that are warranted by the manufacturer to last for at least 20 years and comply with fire, health and environmental regulations.
- Surfaces to be encapsulated shall have sound structural integrity with no loose, chipping, peeling, or chalking paint and no dust accumulation that can be cleaned, and shall be prepared and applied according to the manufacturer's recommendations.
- The site shall have an appropriate barrier to prevent unauthorized people from approaching closer than 20 feet to the replacement operation.
- Warning signs shall be posted at all entrances to the regulated area.
- Any heating and cooling systems within the regulated area shall be shut down and the vents sealed with 6-mil poly to prevent lead dust accumulation within the system.
- All items shall be cleaned within the regulated area by HEPA vacuuming and/or wet wiping with a cleaning solution. Items shall then be removed from the area, or covered with 6-mil poly sheeting and sealed with duct tape.
- At least one layer of 6-mil, (or thicker), poly shall be placed on the ground at the base of the component and extend at least 10 feet beyond the perimeter of the component to be encapsulated.
- A patch test shall be conducted prior to general application to determine the adhesive and cohesive properties of the encapsulant on the surface to be encapsulated (See the HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, Chapter 13).
- After the manufacturer's recommended curing time, a licensed lead abatement supervisor or a licensed project designer shall inspect the entire encapsulated surface. Any unacceptable areas shall be evaluated to determine if a complete failure of the system is indicated, or whether the system can be patched or repaired. Delimitation, wrinkling, blistering, cracking, crating, and bubbling of the encapsulant evidence unacceptable areas.
- After the encapsulation is complete, the regulated area shall be cleaned by vacuuming with a HEPA vacuum, wiping down all surfaces with a cleaning solution, rinsing all surfaces, and then HEPA vacuuming the area again. Cleaning shall begin at the end of the work area farthest from the main entrance to the area and from the top to the bottom of the regulated area.
- All equipment used in the regulated area shall be thoroughly cleaned with a cleaning solution and/or vacuumed with a HEPA vacuum prior to removal from the regulated area.

It is recommended that a visual evaluation of the encapsulant's integrity be conducted and documented by the building owner or the building owner's representative at least every year or immediately after any fire, water, or structural damage. In child-occupied facilities, it is recommended that a licensed risk assessor inspect all enclosures every three years, or whenever the owner's visual evaluation indicates a potential for increased lead hazard exposure.

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Removal.

Acceptable removal strategies include:

- Manual Wet Strategies - Manual wet scraping or manual wet sanding is acceptable for removal of lead surface coatings.
- Mechanical Removal Strategies - Power tools that are HEPA-shrouded or locally exhausted are acceptable removal strategies for lead surface coatings. HEPA-shrouded or exhausted mechanical abrasion devices such as sanders, saws, drills, roto-peens, vacuum blasters, and needle guns are acceptable.
- Chemical Removal Strategies - Chemical strippers shall be used in compliance with manufacturer's recommendations.
- Soil Abatement – When soil abatement is conducted, the lead-bearing soil shall be removed, tilled, or permanently covered in place as indicated in the following paragraphs.
- Removed soil shall be replaced with fill material containing no more than 100 ppm of total lead. If the fill material exceeds 100 ppm total lead, the fill material will be acceptable only if the lead solubility is less than 5 ppm. Soil that is removed shall not be reused as topsoil in another residential yard or child-occupied facility.
- If tilling is selected, soil in a child-accessible area shall be tilled to a depth which results in no more than 400 ppm total lead of the homogenized soil, or other concentrations approved by the department. Soil in an area not accessible to children shall be tilled to a depth which results in no more than 1200 ppm total lead of the homogenized soil or other concentrations approved by the department.
- Permanent soil coverings include solid materials such as pavement or concrete, which separate the soil from human contact. Grass, mulch and other landscaping materials are not considered permanent soil covering.
- Soil abatement shall be conducted to prevent lead contaminated soil from being blown from the site and/or from being carried away by water run-off or through percolation to ground water.

Interior Removal

When conducting a lead abatement project using the removal strategy on interior surfaces, these minimum requirements shall be met:

- The site shall have an appropriate barrier to prevent unauthorized people from approaching closer than 20 feet to the replacement operation.
- Warning signs shall be posted at all entrances to the regulated area.
- Any heating and cooling systems within the regulated area shall be shut down and the vents sealed with 6-mil poly to prevent lead dust accumulation within the system.
- All items within the regulated area shall be cleaned by HEPA vacuuming and/or wet wiping with a cleaning solution. Items shall then be removed from the area, or covered with 6-mil poly and sealed with duct tape.
- All windows below and within the regulated area shall be closed.
- Critical barrier containment shall be constructed.
- At least two layers of 6-mil, (or thicker), poly shall be placed on the floor at the base of the component and extend at least 10 feet beyond the perimeter of the component being abated (removal by the chemical strategy may require chemical resistant floor cover; follow manufacturer's recommendations).

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- All equipment used in the regulated area shall be thoroughly cleaned with a cleaning solution and/or vacuumed with a HEPA vacuum prior to removal from the regulated area.
- At the end of each work shift, the top layer of 6-mil poly shall be removed and used to wrap and contain the debris generated by the shift. The 6-mil poly shall then be sealed with duct tape and kept in a secured area until final disposal. The second layer of 6-mil poly shall be HEPA-vacuumed, left in place and used during the next shift. A single layer of 6-mil poly shall be placed on this remaining poly before abatement resumes.
- After the removal is complete, vacuuming with a HEPA vacuum, wiping down all surfaces with a cleaning solution, rinsing all surfaces and then HEPA vacuuming the area again shall clean the regulated area. Cleaning shall begin at the end of the work area farthest from the entrance to the area and from the top to the bottom of the regulated area.

Exterior Removal

When conducting a lead abatement project using the removal strategy on exterior surfaces, these minimum requirements shall be met:

- The site shall have an appropriate barrier to prevent unauthorized people from approaching closer than 20 feet to the replacement operation.
- Warning signs shall be posted at all entrances to the regulated area.
- All movable items shall be moved 20 feet from working surfaces. Items that cannot be readily moved 20 feet from working surfaces shall be covered with 6-mil poly and sealed with duct tape.
- At least one layer of 6-mil, or thicker, poly shall be placed on the ground and extend at least 10 feet from the abated surface plus another five (5) feet out for each additional 10 feet in surface height over 20 feet. In addition, the poly shall:
 1. Be securely attached to the side of the building with cover provided to all ground plants and shrubs in the regulated area;
 2. Be protected from tearing or perforating;
 3. Contain any water, including rainfall, which may accumulate during the abatement; and
 4. Be weighted down to prevent disruption by wind gusts.
- All windows in the regulated area and all windows below and within 20 feet of working surfaces shall be closed. It is recommended that the windows of adjacent structures within 20 feet also be closed.
- Work shall cease if constant wind speeds are greater than 10 miles per hour.
- Work shall cease and cleanup shall occur if rain begins.
- All equipment used in the regulated area shall be thoroughly cleaned with a cleaning solution and/or vacuumed with a HEPA vacuum prior to removal from the regulated area.
- The regulated area shall be HEPA vacuumed and cleaned of lead-based paint chips, poly and other debris generated by the abatement project work at the end of each workday. Debris shall be kept in a secured area until final disposal.

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Environmental Management

Post-Abatement Clearance Procedures

Only a licensed lead risk assessor shall perform the following post-abatement clearance procedures:

- Following abatement, a visual inspection shall be performed to determine if deteriorated painted surfaces and/or visible amounts of dust, debris or residue are still present. If deteriorated painted surfaces or visible amounts of dust, debris or residues are present, these conditions must be eliminated prior to the continuation of the clearance procedures.
- Following the visual inspection and any post-abatement cleanup required by paragraph (10)(A) of this regulation, clearance sampling for lead-contaminated dust and/or soil shall be conducted.
- Dust and soil sampling shall be conducted.
- Dust samples for clearance purposes shall be taken a minimum of one hour after completion of final post-abatement cleanup activities.
- The licensed lead inspector or risk assessor shall compare the residual lead level from each dust and/or soil sample with clearance levels specified in regulation for lead in dust on floors, windows and soil.
- If the lead levels in a clearance dust sample exceed the clearance levels, all the components represented by the failed dust sample shall be recleaned and tested until clearance levels are met.
- If the lead levels in a soil clearance sample exceed the clearance levels, the soil shall be abated until a composite soil sample meets clearance levels.
- In a multi-family dwelling with similarly constructed and maintained residential dwellings, random sampling for the purposes of clearance may be conducted provided:
 1. The licensed individuals who abate or clean the residential dwellings do not know which residential dwelling will be selected for the random sample.
 2. A sufficient number of residential dwellings are selected for dust sampling to provide a 95 percent level of confidence that no more than 5 percent or 50 of the residential dwellings (whichever is smaller) in the randomly sampled population exceed the appropriate clearance levels.
 3. The randomly selected residential dwellings shall be sampled and evaluated for clearance levels.

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Clearance Levels.

For each respective medium, the following clearance levels shall be met for a lead-abatement project to be considered complete (if background lead levels are lower than the following clearance levels, clearance is not complete until background values are met):

(A) Dust samples

Medium	Clearance Level
Floors	40 µg/ft ²
Interior window sills	250 µg/ft ²
Window troughs	400 µg/ft ²

(B) Soil samples

Medium	Clearance Level
Bare soil (dwelling perimeter and yard)	1200 ppm
Bare soil (small high contact areas, such as sandboxes and gardens)	400 ppm

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3. U.S. Environmental Protection Agency. Residential Sampling for Lead: Protocols for Dust and Soil Sampling (Final Report) March 29, 1995

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Appendices

- A. Glossary
- B. References
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Subsection A: Glossary	Revised

Accessible surface- an interior or exterior surface painted with lead-based paint that is accessible for a young child to mouth or chew (i.e. surfaces within approximately five feet of the floor or ground which protrude more than ½ inch).

Dwelling- a building or structure occupied or designed or intended to be occupied as a place for human habitation and use, construed to include any accessory building or structure.

Dwelling Unit- any room or group of rooms located within a dwelling and forming a single habitable unit, with facilities which are used or intended to be used for living sleeping, cooking and eating.

Friction surface- an interior or exterior surface that is subject to abrasion or friction, including certain window, floor, and stair surfaces.

Impact surfaces- an interior or exterior surface that is subject to damage by repeated impacts, for example, certain parts of door frames.

Lead hazard- any form of lead which could potentially cause an elevated blood lead level, including lead from lead-contaminated dust, lead-contaminated soil, and lead-contaminated paint that is deteriorated or present in accessible surfaces, friction surfaces, or impact surfaces. However, the most common form of lead hazard is lead-based paint.

Nursing care coordination- may consist of ongoing care, minimum of three client/family encounters, documentation of services, and active coordination between the licensed environmental lead assessor and medical provider. For Medicaid eligible children nursing care coordination includes Healthy Children, and Youth Lead Case Management.

Occupant- any person, living, sleeping, cooking, eating in or having actual possession of a dwelling unit or residence.

Owner- a holder of any legal or equitable estate in the premises, whether alone or jointly with others, and whether in possession or not.

Premises- a lot, plot, or parcel of land including all facilities and improvements thereon.

Risk assessment- an on site investigation to determine and report the existence, nature, severity, and location of lead-based paint hazards in residential dwellings, including:

- information gathering regarding the age and history of the housing and occupancy by children under age six.
- visual inspection
- limited environmental sampling
- other activity as may be appropriate, and
- provision of a report explaining the results of the investigation.

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Lead Educational Materials List
Sorted Alphabetically

EDUCATIONAL MATERIAL	SUBJECT	TARGET AUDIENCE	STOCK #	COST	OBTAIN FROM
About Lead and Pregnancy	Effects on pregnancy	Pregnant women	865	None	DOH Warehouse
About Lead and Pregnancy (Spanish)	Effects on pregnancy	Spanish speaking pregnant women	1069	None	DOH Warehouse
Be Alert! Lead Can Hurt! Activity Book	Prevention	Family	281	None	DOH Warehouse
Be Alert! Lead Can Hurt! Magnet	Awareness	Family	722	None	DOH Warehouse
Be Alert! Lead Can Hurt! Sponges	Awareness	Family	29	None	DOH Warehouse
Be Alert! Lead Can Hurt! Stickers	Awareness	Family	235	None	DOH Warehouse
Childhood Lead Folders	Awareness	Family	1232	None	Central Office--SEPH
Check for Lead when Remodeling	Remodeling/renovating	Renovators	261	None	DOH Warehouse
Danger: Lead! By Missouri Commission on Lead Poisoning Report	Reducing exposures and Mgt.	Health care providers and agencies	11174	\$10.00	Central Office--SEPH
Lead Can Kill Precious Things! Poster	Awareness	General Public	954	None	DOH Warehouse
Lead testing plan guidelines chart	Test & Follow-up	Physicians	1231	None	DOH Warehouse
Lead In Your Home: A Parent's Reference Guide (EPA, 70 pgs)	Expanded General Info	General Public/parents	874	None	DOH Warehouse
Lead Paint safety A field guide for painting, home maintenance, and renovation work	Home renovations	Renovators	72	None	DOH Warehouse
Lead Poisoning: You Think it can't happen to your child... Poster	Awareness	General Public	955	None	DOH Warehouse
What you should know about Lead Safety	Protection	Occupational	1041	None	DOH Warehouse
Leadosaurus Character Costume	Awareness	Family	X	Loan	Central Office--SEPH
Leadosaurus Says...Paper Tablets	Awareness	Family	21	None	DOH Warehouse
MDOH Lead Manual	Testing, mgt., & reporting	Health providers & agencies	11047	None	Central Office--SEPH
MO Department of Health Revised Statutes and Regulations: Lead Poisoning Prevention & Lead Licensing and Accreditation	Licensing & accreditation	Inspectors, supervisors, workers, abatement	950	None	Central Office--SEPH

Appendices

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Subsection C: Lead Education Materials

Revised

Mr. Lead Spot Puppet Show	Prevention	Children 2 to 6 years old	1412	\$198	Central Office--SEPH
Preventing Lead Poisoning/Food Safety and Good Nutrition WIC/SEPH	Lead and Food	General Public	596	None	DOH Warehouse
Protect Your Family From Lead in Your Home	Lead in the home	Buyers, renters, renovators	763	None	DOH Warehouse
Runs better unleaded (poster)	Awareness	General Public	50	None	DOH Warehouse
Screening Young Children for Lead Poisoning: Guidance for State and Local Public Health Officials (CDC Guidelines, 122 pgs)	Statewide plan and provider roles	Public health officials	717	None	DOH Warehouse
What Everyone Should Know about Lead Poisoning	General info.	General Public	863	None	DOH Warehouse
What Everyone Should Know about Lead Poisoning (Sp)	General info.	General Spanish Public	311	None	DOH Warehouse
What Your Child's Blood Lead Level Means and How You Can Reduce It	Health risks & reducing levels	General Public/ Parents	356	None	DOH Warehouse

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Subsection C: Lead Education Materials	Revised

LITERATURE ORDERING PROCEDURES for [Request for Literature Form \(DH-47\) \(PDF Format\)](#).

Orders are accepted by mail or by facsimile (573) 751-1574. **We do not accept orders over the phone.**

THANK YOU *for assisting us in serving you better by following the instructions as shown:*

Column 1- Requested	Enter the amount of each title you are requesting. Please pay attention to limitations on the quantity of certain titles. <i>Literature for requestors outside of our state is limited to one courtesy copy per request.</i> Please be aware that some literature may be distributed by pad, package, or set and should not be ordered by each.
Column 2 - Supplied	LEAVE BLANK. This space is for office use only. <i>If an item is out of stock, it will be noted in this column.</i> You will need to submit a new request form for items that are out of stock.
Column 3 - Stock No.	Enter the stock/literature number located on the Literature Listing or on the back of the pamphlet in the lower right hand corner
Column 4 - Title	Enter the exact title as it appears in the Warehouse Literature Listing or from the front of the pamphlet. Please list each title separately.
Column 5- Comments	LEAVE BLANK. This space is for office use only. If an item is discontinued, is restricted to a limit, or requires program approval, it will be noted in this column. Do not resubmit a form for discontinued items, these items will no longer be available.

Please be sure to complete the bottom portion of the request form: give the name of the person requesting the order, the organization name, and a complete street address. Most orders are sent UPS (United Parcel Service) and **will not be delivered to P.O. Box numbers**. A telephone number is needed so we may contact you with any questions regarding your request.

The requestor should keep the pink copy of the completed request form for their records. (Make a photocopy when using the downloaded version.) Mail the white and canary copy to:

Missouri Dept. of Health and Senior Services
Literature Library
P.O. Box 570
Jefferson City, MO 65102-0570.

When the order is processed, the yellow copy will be sent back to you, along with two blank request forms. If only a photocopy is sent to us we will not have a yellow copy to include with your shipment.

